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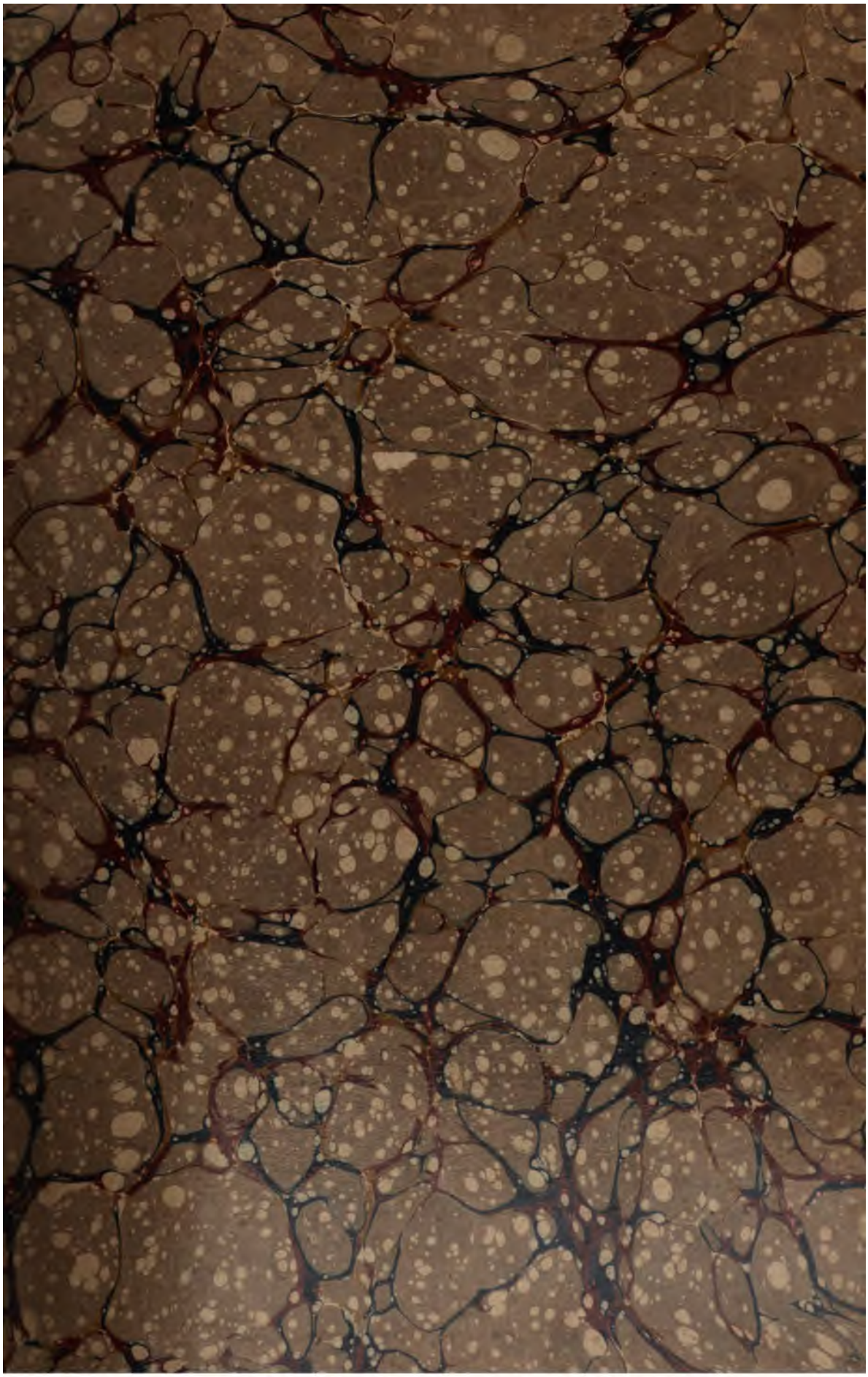

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COMMON-SENSE METHODS IN ARITHMETIC AND ALGEBRA.

By GEORGE A. GIBSON, M.A., LL.D., F.R.S.E.
Professor of Mathematics, Glasgow and West of Scotland Technical College.

THE reports of the examiners in the Oxford Local examinations, summarised in THE SCHOOL WORLD for October, 1906, pp. 378–381, raise several questions that are of interest to teachers, and I propose in this article to discuss one question that is of fundamental importance to the teacher of mathematics. In the notes on the handling of problems in permutations and combinations, the examiners remark that (p. 381) "Candidates should be taught that these questions are entirely questions of common sense and not of formulæ"; and they add, "It may also be remarked that all through there seemed to be too much use of formulæ rather than of the applications of first principles." These two sentences call for the serious consideration of teachers of mathematics, and it is the principle implied in them that I propose to discuss.

It is probable that every type of blunder referred to by the examiners is quite familiar to teachers, so that the value of the report does not lie in the specification of the blunders; its value is rather due to the evidence thus furnished that the difficulties experienced by all pupils are to a very large extent identical. When it is considered that the examinees are drawn from widely separated schools and are taught by teachers of very different aptitudes and training, it is rather remarkable that the types of error are so constant. This constancy of type seems to indicate that the mistakes are "natural," and at once suggests the question whether it is possible to discover a definite reason for the presence and persistence of such mistakes. After all allowance is made for mere carelessness on the part of individuals there still remains a large proportion of gross blunders that can only be accounted for on general rather than on individual grounds. To what general source is this state of things to be traced? Is a common type of mistake due to a neglect of common sense?

There is, I think, little doubt that one of most perplexing of a teacher's difficulties is persistent failure of a pupil to observe pre tions and admonitions of the most common-s kind. The facts, as stated in the report confirmed, I believe, by a teacher's daily perience, indicate that pupils are prone to to formulæ which they apply mechanically, to give no heed to the general principles which the formulæ are based and which cond their application. In some parts of mathemati for example, in the field of permutations and binations, specially referred to in the report- mechanical use of formulæ is peculiarly l to lead to wrong results; but the tendenc trust to formulæ is so general in all part mathematics that the explanation of that tend and the means of controlling it must be so for outside any special subject of the m matical curriculum. The tendency is, I bel due to a habit or attitude of mind that is fos by an arithmetical training in which mere w ing by rules occupies too prominent a place, can only be effectively checked by a chang the teaching of arithmetic.

If algebra is to be treated as generalised a metic—and there is practically universal a ment on this point—it seems reasonable to pose that the pupil, before beginning the s of algebra, should have definite conception the meaning of the processes of ordinary a metic. It is necessary, but it is not suffic that he should be able to perform correctly various transformations required to reduc arithmetical expression to its simplest form. experience shows, it is quite possible to children the rules of arithmetic in such a that they can work correctly difficult arithm examples while at the same time they hav real grasp of the foundation in common of the rules they apply. Without such gras pupils are unable to use the rules to the advantage, and they have nothing to guide in selecting the best method when more met than one are available. The simplificatio fractions, for example, offers many opportu for the intelligent application of the rule a fraction is not altered in value when nume and denominator are multiplied by the

number; yet the great majority of pupils blindly follow some stereotyped process of reducing a complex fraction to its simplest form. The chief reason for their unintelligent work seems to me to lie in the absence of a firm grasp of the rule itself. The same characteristic of rigid adherence to a set of rules can be traced through a great part of arithmetical practice, and is, I am persuaded, due to the same cause. It is here that the explanation is to be found (in part at least, for no one cause can bear the whole responsibility) of the constant neglect to check a result by a rough preliminary calculation, or by comparison with what common sense would lead one to expect. The teacher may, in the words of the report (p. 378), "insist on the invariable consideration of an answer as to its reasonableness," but no amount of insistence will have much weight with a pupil who thinks he has "followed the rule." The mental outlook of such a pupil is too narrow for him to consider anything beyond the application of a rule, and when he makes a slip he has no resources from which to draw so that he may correct or even detect it, except, it may be, by merely going over his figures again.

Another feature of arithmetical teaching that is usually associated with excessive devotion to working by rules is the predominance of mechanical schemes or devices for the carrying out of operations, to the exclusion of chains of expressions connected by the proper symbols of operation. The operations which may be performed on an expression without altering its value while changing its form are not emphasised; the science of arithmetical operations is not developed, but the acquisition of practical facility in applying rules absorbs the whole energy of the pupil. The attainment of such facility is very desirable, but in order to attain such facility, it is not necessary to neglect the study of the operations themselves and thus lose valuable opportunities of training the pupil to appreciate simple forms of abstract reasoning. As a preparation for the study of algebra or generalised arithmetic, the study of the equivalence of the two expressions $9-(5-2)$ and $9-5+2$ is even more important than the reduction of each to the number 6; but in actual practice little or no stress is laid on such study. It is in the study of simple, easily illustrated cases like this that the pupil can not only become familiar with the importance of *form*, but also grow accustomed to the consideration of general principles. The general laws of arithmetical operations, which are at a later stage made the basis of algebra, can quite well be illustrated in such a way that the pupil will gradually realise that, although he is dealing with particular numbers, he is stating principles, or laws, or rules of operation that are applicable whatever numbers he may take.

Of course, no sensible person will ask that the technical nomenclature for these laws should be used with children, and there must always be considerable latitude granted to the teacher as to the time when he will discuss such questions. But the discussion is postponed too long if it is only begun when the pupils commence formal algebra. Even such a simple proceeding as the use of a letter to represent a number makes a demand on the power of abstract thinking for which the pupils are not prepared; the use of negative numbers and the deduction (or the *definition*) of the rule of signs and the establishment of the ordinary working rules appeal to the pupils simply as so many more rules which they have to commit to memory, and not at all as the natural extension of principles with which they are already familiar.

One cannot forget that algebra is *generalised* arithmetic, and is therefore comparatively abstract; unless pupils before beginning the study of algebra have been gradually led to appreciate the generality of arithmetical operations and to follow out simple chains of reasoning, it is unreasonable to expect them to do more than apply rules mechanically. The manifold exhortations to use common sense and to refrain from blindly following rules are in fact out of place. To such pupils common sense can only mean that they must follow a rule, and one need not be surprised that amid so many rules the pupils often go astray; the wonder rather is that the blunders are not more frequent.

The blame for the unsatisfactory character of much work in arithmetic and algebra cannot I think, be fairly attributed to the absence of good text-books. In recent years several excellent text-books on arithmetic and algebra have been put on the market, and if these were properly used there would, I believe, be great improvement in teaching. No text-book can wholly replace the living voice, but neither, in my opinion, can the living voice replace the text-book. However that may be, there is urgent need for the practical rationalisation of arithmetic; the pupils should be regularly trained to put in words the reasons for the equivalence of two sets of operations, illustrating these by concrete examples. Geometrical illustrations can now be given with special facility by means of the ubiquitous squared paper. Practice of this kind would be a relief from the somewhat repellent round of arithmetical calculations, and would gradually develop the capacity of drawing inferences while awakening the notion of general principles. When formal algebra is begun, the pupil will see for himself that he is merely doing arithmetic, and as he advances in his study he will appreciate both the reasonableness and the simplicity of the extensions of arithmetical conceptions.

The teaching of algebra to pupils thus prepared can be much more thorough than is customary at present. The common reference to the laws of combination established in arithmetic will then have a definite meaning, and the formal enunciation of these is quite justifiable on the grounds of "scientific economy." One possibility deserves particular notice; a pupil may now

be expected to understand the rôle of *definition* in algebra. The really vital importance of definition is not, I venture to think, sufficiently emphasised even in good text-books. At bottom the fundamental laws of algebra are really definitions; they form the premises from which the rest of the algebraic theorems are to be derived by a process of logical deduction. The manifold applications of algebra in geometry, mechanics, physics, &c., depend upon the fact that the operands and operative symbols of algebra satisfy the same laws of combination as the magnitudes dealt with in these other sciences. This is, of course, what might be expected when the origin of the fundamental rules of arithmetic is considered; but the generalisation of the rules of arithmetic is deliberately made so as to form a system that will have wide applications, and this generalisation is accomplished by means of suitable definitions. So far as my experience enables me to judge, the great majority of students have the utmost difficulty in appreciating the importance of definitions, and I attribute this difficulty in great measure to the lack of training in the discussion of the meaning of the processes of arithmetic. Even in text-books one frequently finds an argument based on operations that not only have not been defined, but that have been expressly excluded in laying down the fundamental laws. The most frequent case is probably that of division by zero; in fact, zero and infinity fare very badly in the hands of most students, and are a constant source of serious error.

It is, no doubt, quite possible (daily experience proves the possibility) to teach pupils to perform correctly many algebraic transformations and to make use of algebra in various applications without subjecting them to drill in the common-sense principles that underlie all their work; but pupils of this type are specially liable to the blunders that call for comment as violations of common sense. This special liability to error is not an accidental failing that can be remedied by exhortations to remember the rules, or to use common sense; it is rather the accompaniment of a narrow mental outlook, of a habit of working according to stereotyped methods. Such pupils show no flexibility simply because their training cannot develop it; they work by rules of which they have not grasped the meaning, because they have not been trained to go behind the rules and find the reasons on which they are based. Their work is almost wholly mechanical and necessarily so. If, on the other hand, pupils have throughout their arithmetical training been led to see how the various rules are formed, and taught to express the various steps in the working of examples as a succession of intelligible operations, they will not only have the rules at command, but have greatly strengthened their capacity for reasoning correctly. Arithmetic when properly taught is a valuable instrument of mental discipline; if it be taught simply as a system of rules that have to be remembered, it may no doubt develop the memory, but it will not appreciably call forth the p of clear, logical thinking, and without this fa the study of algebra is bound to be both dif and unfruitful.

The most salutary check on the vanity o teacher who imagines himself to be a sk expositor of his subject is probably to be f in the examination of papers worked by p whom he himself has taught; the facility which the pupils misinterpret the teac favourite devices or conceptions is a con reminder of the complexity of the proble mental training. The growth of the facult what may be termed abstract thinking i general exceedingly slow. To the average the pth root of the qth power of x is a mer pression, even when the 5th root of the 4th p of x is a fairly intelligible conception. The mainder Theorem can often be applied corr when the meaning of it is hardly at all gras and many pupils can solve an equation gra ally who are quite unable to justify their me on any general principle. The fundamental culty in all such cases is due to the fact the mind can only grasp the particular and concrete, not the general and the abstrac comparatively long training, with exercise the simplest kind in the earlier stages, is n sary for the acquisition of the power of rea ing about general principles.

If there is any force at all in my conten it is incumbent on the teacher to keep both as of arithmetical work steadily in view: on one hand, accuracy in the performance of a metical operations must still be demanded, on the other, the possibilities latent in study of arithmetic for the development of th ing power must be more fully recognised translated into practice. That the task is not may at once be granted, but that it is hop I see no ground whatever for believing. Whe the pupil advances to the study of algebra or he will receive more benefit from a systen effort to understand the meaning of the nume rules of arithmetic and to express arithme operations in an intelligible and logical s bolism than from the mechanical exercises constitute so large a part of present prac Whatever method of arithmetical training followed there will always be, so long as hu nature is as complex as it now appears to a certain proportion of children who will fa gain more than a moderate command eithe the science or of the practice of arithmetic; it is impossible to accept the position that e practicable system of training will always l it possible for the majority of children, or for a large minority of them, to neglect comm sense precautions, or to serve up absurd ans to questions in the way that is so commo present. Any method of teaching that mak possible for a large number of pupils to m gross blunders without being aware of them this is really the charge against present prac is self-condemned; either the subject is un

able for children, or else the methods of expounding it are at fault.

It is, of course, possible that the defects of present practice are not so serious as many examiners and teachers believe, but they are undoubtedly serious enough. The types of error referred to in the report mentioned above are certainly frequent; in my judgment they are not to be remedied by any method of selecting some formulæ as necessary to be committed to memory and relegating the rest to a reference table, but can only be effectually kept in check by a training that will enable a pupil to go behind the formulæ and reconstruct them for himself so that he may be less dependent on formulæ and more able to tackle problems in the light of first principles. Such a training, however, must extend over years, and should, in my judgment, be well advanced before the study of formal algebra is begun.

SOME DEFECTS IN THE TEACHING OF HISTORY IN SCHOOLS.

By F. J. C. HEARNSHAW, M.A., LL.M.
Professor of History in the Hartley University College, Southampton.

I.

WE who are engaged in the teaching of history, whether in schools or in colleges, do well to lift our eyes occasionally from the engrossing contemplation of our pupils or our tasks, in order that we may observe that we are being watched by critics who are making a careful and exhaustive study of ourselves and our methods, our teaching and its results. These critics are usually kindly and sympathetic, even if keen and candid. Many of them speak with knowledge and authority. As Edward III. from the serene summit of a windmill beheld the field of Crecy and the Black Prince toiling in fighting, so do they view the narrow sphere of our work—our conflict with ignorance—from a height and a distance sufficient to enable them to regard it as part of the wide field of educational operations as a whole. They are not unwilling to come to our help and assistance when we are in need. Nay, more; they offer us their aid, and we should be churlish and unwise indeed if we were not to accept it with gratitude.

Who are these mentors? From what points of view do they regard us and our labours? First, there are the educational experts, the exponents of the theory of pedagogy, who have opinions as to what history ought to accomplish, if it is properly taught; they criticise comprehensively our aims, our materials, our methods. Secondly, there are the public examining boards, who, in judging the achievements of our pupils and reporting upon them, indirectly judge us and reveal our weaknesses and defects. Thirdly, there are Government and other inspectors—somewhat awfully familiar to those of us who are nurtured by such stern foster-mothers as the Board of Education or the County Councils—who come to see and hear us teach, and who tell us with frankness that tends to shake our magisterial dignity what they think of it all. Finally, there are the great teachers of our subject who, from the vantage-ground of their wide experience and knowledge, guide and direct their lowly followers.

What are the general features of the criticisms and suggestions offered by these various authorities? Let one example under each head suffice for it will be more profitable, I think, later on to throw the judgments all together and then regroup them in order to treat them in some kind of logical classification and order.

1. CRITICISM OF EDUCATIONAL EXPERTS.

In 1897 a skilled educationist, Mr. George L. Fox, came from America in order to study specially the teaching of history in English secondary schools. He was not favourably impressed by what he saw. He quotes in his report,[1] with evident approval, the verdict of Mr. Bryce, that "history is of all subjects which schools attempt to handle perhaps the worst taught"; and adds with equal agreement, the opinion of Mr. Storr that "it is generally admitted that the teaching of history is exceedingly bad in our schools." He speaks generally of the "great lack of system and uniformity of method" in the teaching of history in England, and then passes on to enumerate six specific defects commonly noticeable. First, "European history, except where it is in close contact with English history, is not formally and generally recognised in the school curriculum." Secondly, "little attention is paid to the history of Great Britain during the present century, or, to speak more accurately, since the passing of the Reform Bill in 1832." Thirdly the teaching of civic duty is neglected, and, as Mr. Bryce says, "boys leave our so-called secondary schools . . . having received no regular instruction in the principles and working of the British constitution, much less in their own system of local government." Fourthly, "the time allowance for the regular teaching of history in most English schools shows less consideration for the subject than in France or Germany." Fifthly, specialists have not commonly, until recent years, been employed to teach history, but the subject has been entrusted to any form master whose time is not otherwise wholly filled up. Finally, "the earnest use of 'sources' with secondary-school pupils is very rare in England." Such are the flaws in English historical teaching which this acute American educationist perceives.

2. CRITICISM OF PUBLIC EXAMINING BOARDS.

Year by year the syndics of the Oxford and the Cambridge Local examinations issue reports covering subject by subject the whole ground of their examinations. Frequently the remarks of those erudite, laborious, and much-to-be-pitied scholars, who—with a courage and endurance e

[1] Appendix V. to "The Study of History in Schools." Report of the Committee of Seven. (Macmillan, 1899.)

ceeding that of mediæval flagellants—have read and judged the multitudinous scripts gathered from all parts of the Empire, are full of suggestion for the teachers who have trained the writers of the scripts. Thus in their last report the Oxford examiners complain of (*a*) a want of accuracy in important dates, (*b*) a failure to co-ordinate geography with history, and (*c*) a lack of ability on the part of pupils to "discriminate between the more and the less essential issues." Similarly, the Cambridge examiners in their recent reports have directed attention to such faults as "a general inability to distinguish between important facts and trivial details," an unintelligent use of stock phrases and imperfectly-grasped terms, a failure to perceive causal connections between events, a neglect of historical geography, an ignorance of the constitutional side of history, an increase of "the practice of learning by heart answers to probable questions," and, among older candidates, the existence of "much confusion of thought on economic subjects." In 1896 they were so greatly disheartened that they were constrained to utter the lament: "The results of the examination suggest the conclusion that the subject is regarded very generally as of little importance, and that far too little time is given to its study." A reprint of the general criticisms of these Oxford and Cambridge reports, if the university authorities would allow it to be made, would be very useful to teachers.

3. Criticism of Inspectors.

The observations of inspectors are, of course, usually made verbally and personally; they apply primarily to individual teachers, and they are rarely made known to the world. This is a misfortune; for the inspectors employed by the Board of Education and the larger County Councils are, as a rule, men of high attainments and wide educational experience—men, moreover, with a definite policy and clarified ideals. However, occasionally inspectors publish reports and issue memoranda, and from these it is possible to glean much valuable information concerning current methods of historical teaching and some pungent utterances concerning its defects. I have before me as I write two typewritten documents sent out by the Board of Education. They relate, it is true, specially to the teaching of history in training colleges; but that pupils in the middle forms of a secondary school and students in a training college differ in little else than in age is one of the prime truths that more than five years' experience with each has taught me.

The first of these documents treats of the teaching of history; the second deals with the results of a recent examination. In the former, the writer, Dr. Osmund Airy (whose name is well known in the world of history) lays down many suggestive canons for the guidance of the teacher. In opening, he speaks of the use of a text-book. Some teachers discard the text-book altogether; they are unwise: "a good text-book has its place; it serves at least to present a considerable period in a compassable and connected form shows up the necessary landmarks." As to use of the text-book, it is good for the pupil read the portion assigned for a lesson *before* well as after, it is dealt with in class. A note-taking, the pupil should be exercised guided from the first in this most difficult all-important art: "very few students know to take notes well; it is one of the most u of practices." As to the lecture method o struction, it should be carefully avoided: " of the very essence of good teaching . . . there should be an interchange of voice bet teacher and taught," and "it is impossibl insist too strongly upon this partnersh between teacher and pupil, each questioning, eliciting information from the other. A written work on the part of the pupil, it sh not be omitted altogether, though it should be excessive in amount; "one of the main w nesses of students is the failure to realise ex what they are asked for"; an occasional paper will enable a teacher to correct this de and will give him an opportunity to suggest provements in literary style. As to reading plementary to the text-book, the teacher sh stimulate his class to seek it, and should tell what to read; "monographs upon special pe or subjects, commentaries of various cal . . . original authorities, and the best torical fiction" should be employed to clothe dry bones of the text-book outline. Finally to the functions of the teacher, it should be work to make those under his charge realise humanity of history, the continuity of his the picturesqueness of history; he should fill with "the habit of reverence for nobility," he should quicken their imagination. "W these three senses—the senses of humanit history, of continuity, of picturesqueness—when reverence and imagination have been quired, the student is a historian indeed."

The second of these Board of Education pa deals, as I have said, with the results of a re examination. It contains three criticisms of papers under review: (1) "The outstan defect in the history papers was irrelevance, constant introduction of information not germ to the question." (2) "The second very se weakness was the absence of any evidence, one or two notable exceptions, of indepen reading on the part of the students." (3) T were very few indications that "the atlas been studied side by side with the history."

From these examples it will be seen in a valuable manner the criticisms of inspec supplement those of educationists and exami

4. Criticism of Historians.

Several great historians have in recent y expressed opinions concerning the teaching history in schools. Thus MM. Langlois Seignobos have in their "Introduction aux Ét historiques" a chapter on "L'enseigne secondaire de l'histoire en France." It d

however, not so much with methods of teaching as with the end the teacher should have in view. The writers hold that history should be employed, not to inculcate moral lessons, or to inspire patriotism, but simply to serve as "un instrument de culture sociale." M. Lavisse, also, deals with the question in his "À propos de nos Écoles." In England Prof. Firth, of Oxford, is doing a great work for teachers through the Historical Association, of which he is founder and first president. All who are interested in the teaching of history should join this association (sec., Miss Curran, 6, South Square, Gray's Inn, London, W.C.), and should obtain its valuable leaflets. Prof. Firth mentions as among the defects of modern history teaching: (1) the effort to impart too much detail—"the average text-book contains too many facts, and the average teacher tries to be too comprehensive"; (2) the failure to co-ordinate geography with history—"the defect is partly due to the fact that in 'locals' and other examinations which affect the curriculum of a school the geography prescribed has no relation to the history prescribed, so that one study does not reinforce the other; it is also due partly to the fact that few schools have trained teachers of geography"; (3) the failure to co-ordinate English literature with English history.

Such, then, are examples of the various kinds of criticism passed upon teachers of history, their aims, methods, and achievements, by the different classes of authorities. I propose in another article, using these criticisms as a basis, to discuss a constructive policy of reform.

RECENT CONTRIBUTIONS TO THE STUDY OF CHEMICAL CHANGE.

By W. A. DAVIS, B.Sc. (Lond.),
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I.—THE RUSTING OF IRON.

THE rusting of iron, which at first sight would appear to be one of the simplest of chemical changes, has recently been the subject of considerable discussion. It may perhaps seem strange that the cause of a phenomenon so generally observed and so destructive in its results should not long ago have been definitely ascertained and a final solution given of so apparently simple a problem. The reason lies in the fact that the rusting of iron is one of those changes which are conditioned by minute traces of impurity. The consideration of recent work with regard to this problem affords a convenient standpoint from which to survey the larger question of the conditions determining chemical action in general. Recent researches appear to have established firmly the principle that between two substances in a state of purity direct interaction is impossible; certain conditions associated with the presence of a third substance have to be fulfilled before action becomes possible. It is intended in the present series of papers to s why it is necessary to adopt this view in the of several important changes, such as the rus of iron and combustion, as well as to indicate older ideas have been modified or become un able. Finally, cases will be dealt with in w the influence exerted by traces in determining interaction of large masses has been applie industrial operations.

It has long been known that iron, when dry, will not rust in the air but that it un goes corrosion rapidly when exposed to the sir taneous action of air and water. During greater part of last century rusting was regar as a simple process of oxidation; no attempt made to explain the part played by water in change, although its presence was recognised essential. It had early been established water alone would not cause iron to r In 1871 the experiments of Crace Cal showed that the presence of carbon dio was an essential factor in rusting, and t were interpreted in 1888 by Prof. C Brown, who formulated what is now known the "carbonic acid theory" of the rusting iron. It was contended that these experime showed that the formation of rust was not to a direct attack of oxygen upon the wet i but that the carbonic acid present in the air solved in the water, forming an acid solut which attacked the iron, producing initially rous carbonate or bicarbonate; the carbonate s sequently undergoing oxidation under the fluence of atmospheric oxygen, forming fer hydroxide or rust, carbon dioxide being libera so as to continue the action. The success changes were summarised as follows:

$$4(Fe + H_2O + CO_2) = 4FeCO_3 + 4H_2$$
$$4FeCO_3 + 6H_2O + O_2 = 2Fe_2(OH)_6 + 4CO_2.$$

Exactly as much carbon dioxide is liberated the second equation as is required for the fir action to occur, so that when the action is on started it becomes continuous; in fact, a sm quantity of carbon dioxide should be able theoret ally to convert an infinite quantity of iron i rust. This theory was at the time generally cepted and for several years its substantial corre ness was not called into question.

In 1898, however, Prof. Dunstan, director the scientific department of the Imperial Institut in a lecture delivered at the Royal Artillery I stitution, Woolwich, brought forward another e planation. He considered that his experimen since published in detail in the *Transactions the Chemical Society* for October, 1905 (v lxxxvii., p. 1548), showed that pure water and pu oxygen, in the absence of carbonic acid, we sufficient to cause iron to rust. Rusting w held to be due to the direct attack of oxyg and water on the metal according to the equ tion—

$$Fe + O_2 + H_2O = FeO + H_2O_2,$$

ferrous oxide being produced, together wi hydrogen peroxide. The latter would imm

diately oxidise the ferrous oxide to a hydrated ferric oxide or rust, thus:

$$2FeO + H_2O_2 = Fe_2O_2(OH_2).$$

This theory was based on the observation originally made by Schönbein and subsequently studied in greater detail by Moritz Traube, that the slow oxidation of several metals, notably zinc and lead, is accompanied by the formation of hydrogen peroxide. It was strengthened by the fact that the slow oxidation or "autoxidation" of many organic substances, such as turpentine and aldehyde, has also been found to give rise to hydrogen peroxide or other peroxides; and additional support appeared to be given to the theory by the fact that a number of substances known to decompose hydrogen peroxide—for example, the alkalis, sodium and potassium carbonate—and the salts of weak acids, such as sodium nitrite and potassium ferrocyanide, were found to prevent iron from rusting when in contact with air and water. Oxidising agents, such as chromic acid, were considered for the same reason to be preventive of rusting.

The need of an explanation of the rusting of iron other than that based on the assumption of above, twice as much hydrogen per(would be produced by the direct action of v and oxygen on iron as is required to oxidis(ferrous oxide completely to rust. Hydrogen oxide is, moreover, one of the most easily tected of chemical substances, even when o trace is present. A most minute quantity duces a yellow coloration with a solutio titanic acid; while it has been calculated 0·00000005 gram molecule of the peroxide be detected by the blue colour it produces potassium iodide and starch.

In studying the behaviour of salts in pre ing or accelerating rusting, Dr. Gerald T. Mc of the Central Technical College, came to conclusion in 1903 (*Proceedings Chem.* 1903, pp. 157 and 239) that the influence ex by certain compounds on the atmospheric ru of iron depends not on their power of des ing hydrogen peroxide but on their beha towards carbon dioxide. Those substances which combine with, or are decomposed carbon dioxide inhibit rusting. Sodium n arrests rusting because it is decomposed by ca dioxide, giving sodium carbonate and nit

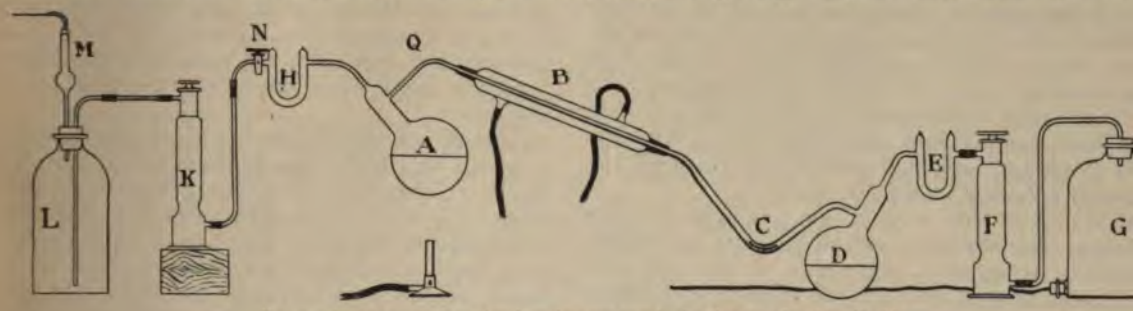

FIG. 1.—Apparatus to show that iron does not rust in the absence of carbon dioxide.

the activity of carbonic acid really turns on the question whether pure oxygen and water *alone* are able to rust iron. Prof. Dunstan considered that in his experiments he had succeeded in absolutely excluding carbon dioxide and contended that the older theory of rusting was "quite untenable, since it has been shown that rusting can take place in the absence of carbonic acid." In the ordinary atmospheric corrosion of iron the part played by carbonic acid was held to be "subsidiary and not essential." Several analyses were cited to show that ordinary rust contains only a small proportion of carbonic acid and that its composition approximates to that required by the formula $Fe_2O_2(OH)_2$; "it is an interesting coincidence, if nothing more, that a substance of this formula would be formed by the union of two molecules of ferrous oxide with one of hydrogen peroxide."

It is, however, of great significance that whilst in the slow oxidation of zinc and lead under certain conditions the formation of hydrogen peroxide can easily be recognised, not a trace of hydrogen peroxide can be detected during the rusting of iron. This is the more remarkable inasmuch as, according to the equations given acid; potassium ferrocyanide similarly abs carbon dioxide, evolving hydrogen cyanide becoming alkaline. Potassium iodide, on other hand, which instantly decomposes hydr peroxide, does not arrest but actually accele rusting. Pure hydrogen peroxide, morec when free from every trace of acid, was fc not to cause iron to rust.

In the light of these results, which canno reconciled with the hydrogen peroxide theor rusting, it became necessary to ascertain whe in the experiments which were relied on as p ing that oxygen and water alone were sufficie rust iron, every trace of carbon dioxide had excluded. In a series of carefully conducted periments, described in the *Transactions of Chemical Society* for April, 1906 (vol. lxx p. 720), Dr. Moody was able to show although it is extremely difficult entirely to move carbon dioxide, when very special cautions are taken to eliminate this subst iron may be left in contact with pure oxygen pure water for many weeks without underg change. After several unsuccessful attempt exclude carbon dioxide, the apparatus illustr in Fig. 1 was ultimately found to be

factory. A small rod of pure iron is placed in the bend, C, of a piece of glass tube which passes through the condenser case, B, and is sealed to the side tube of the distilling flask, A. The flask D, acting as a receiver, is connected as shown with the large aspirator, G, by means of the U-tube, E, containing soda-lime, and the tower of caustic potash, F. The air reservoir, L, containing sticks of moistened caustic potash, is joined to a soda-lime tube, H, and the caustic potash tower, K. When the aspirator, G, is in action, air enters the apparatus through the minute orifice at the upper part of the tube, M, which is filled with soda-lime. As all the essential parts of the apparatus are fused together, leakage of carbon dioxide from the air into bend C is entirely prevented when reasonable precautions are taken. Where india-rubber connections are necessary in the apparatus, pressure tubing is used, securely wired on and with its surface covered with vaseline. In making an actual experiment, the piece of polished iron in the form of a cylinder was placed in the bent glass tube with sufficient of a 1 per cent. solution of chromic acid just to cover it. Air was then slowly drawn through the apparatus during about three weeks, so as to remove any trace of carbon dioxide from contact with the iron. Water was then distilled from the flask, A, containing a 1 per cent. solution of baryta, until all the chromic acid was washed into the receiver D. Air was then gradually admitted and drawn through the apparatus during about six weeks.

Working in this way, it was found in one experiment that thirty times the quantity of oxygen necessary to convert the whole of the iron into oxide was passed through the apparatus without even a speck of rust becoming visible. That the preliminary treatment of the iron with chromic acid had in no way rendered it unsusceptible to rusting was shown by removing the scrubbing arrangement by which the air was freed from carbon dioxide, so as to permit of the ingress of this gas with the air; rusting was seen to begin immediately; in seventy-two hours the whole of the surface of the metal was corroded and a considerable quantity of red rust had settled in the bottom of the bend.

It must therefore be considered as established beyond doubt that, in the absence of traces of carbon dioxide, pure oxygen and water will not attack iron. Essentially the action is one of attack by acid. A trace of any acid will initiate the process but rusting appears to occur most rapidly when the acid is carbonic acid; this is owing to the fact that ferrous carbonate is easily oxidised to ferric hydroxide, the whole of the carbonic acid being liberated, so that it is available again to attack the iron. That carbonic acid is the principal agent in ordinary atmospheric rusting is shown also by analyses of iron rust in the course of formation. Such rust contains a large proportion of ferrous carbonate but when it is exposed to the air during about a week it rapidly undergoes oxidation, losing carbon dioxide a being converted into a hydrated ferric oxide.

So long as pure iron is in contact only with p oxygen and water the conditions which de mine chemical change remain unfulfilled. order that chemical change may take place tween any two substances, it appears essen that a potential difference should exist betw these substances whilst an electrolyte is pres which enables an electric circuit to be formed. illustrate this action, the case of zinc dissolving dilute sulphuric acid may be considered; w the metal is impure it dissolves rapidly in acid but as the zinc is more and more puri it dissolves with increasing difficulty, until timately a very highly purified metal hardly solves at all. Directly, however, a piece of cop is placed in the acid and in contact with the zi the latter dissolves rapidly and an electric curr is generated, hydrogen being evolved at copper and not at the zinc. In the case of dinary commercial zinc, a number of tiny elec cells are formed between the particles zinc and the particles of impurity, such carbon, lead, and iron; the hydrogen libera during the dissolution of such commercial m must be considered as evolved, as in a sim galvanic cell, not from the surface of the zinc from the particles of the impurity acting as p tive poles.

To sum up: pure water is a non-electrolyte; presence of a trace of acid, such as carbonic a however, the water becomes conducting and electric circuit is formed between it and the ir consequently the metal dissolves, giving a solut of a ferrous salt which undergoes more or l rapid oxidation—ultimately to form rust. T trace of impurity in the water initiates the acti In a subsequent article reasons will be given considering that the presence of a similar "i purity" is also determinative of the compl changes which occur when a candle burns when a piece of coal is kindled.

"BRADSHAW" AS A CLASS TEXT-BOO

By ALBERT G. LINNEY,
Ackworth School, Pontefract.

"Romance!" the season-tickets mourn,
"*He* never ran to catch his train,
But passed with coach and guard and horn—
And left the local—late again!"
Confound Romance! . . . And all unseen
Romance brought up the nine-fifteen.

SO sings Mr. Kipling: the Romance of Iron Road is real to-day, and the schoolb can recognise it for himself almost as s as the grown-up. Real, tangible, seeable thir interest a child at once, and there is more in the heart of the youngster over one flint a head put into his hand to feel than over nin and nine perorations on Magna Charta.

Thus in geography. The train brings him school, the train takes him home again, and

ears him to the seaside for his holidays. ear he went down to Edinburgh in the g Scotchman " to see his uncle, and the week his father wrote that he had been he " Irishman " to Holyhead. And so, you tell the boy that the term's course in phy is going to deal with British railways, at " Bradshaw " is going to be the text- he pricks up his ears at once, and feels is in touch with his work already.

Le Queux and the other gentlemen who the public with horrific tales of German ns of England show us that the conquerors , as their forerunners used to do, follow he coast up the river-valleys. No; it is lroad which is the important thing. Com- in the twentieth century has its marts rail communication is best—for the most These are reasons, then, why there is *ional* value to be got out of geography g on the lines which I have hinted at and e to develop.

E PRACTICAL POINTS FOR TEACHERS.—Any nodern geography text-book will give suffi- nformation in condensed form for a work- sis when preparing for the course. As a ce map, to place upon the wall if need re is a very comprehensive map issued by *ilway Magazine* (30, Fetter Lane, E.C.); , to display in front of a class, I found ful to make an outline map of England largest sheet of white paper I could obtain. as we dealt with the lines one by one— ing, for instance, with the East Coast, Coast, and Midland routes to Scotland—it nvenient to mark in these main lines in t colours. At the end, say, of one or sons all that this map contained were the London to Scotland routes, standing out the eye, no names being inserted.

might follow the two routes to the West y by the Great Western and the London outh-Western; next the lines joining with Dover, Folkestone, and Newhaven, ree most important cross-Channel start- nts; and so on.

srs. Cassell and Co., Ltd., publish a capital of " Guides " to the chief lines; each contains a map of the system, many illus- s of the principal points of interest, in- ion as to the trade of the districts passed h, and the cost of each volume is only ng. This series may very well be placed ase in the class-room, so that the pupils sult the books for themselves. If circum- permit, the current issues of the *Railway ine* are suitable to be added to the book- Nor should we forget to utilise the ubiquit- cture postcard: there is at least one set ting types of the engines used by the great ies, and the postcard board will seldom out spectators.

POSTER IN TEACHING.—Through the eye to in is one of the cardinal maxims for the as well as for the advertiser. I have always found the headquarters officials of the big railway companies ready to forward a batch of their best posters and their most useful handbooks to schoolmasters who wrote and explained why they wanted them. The walls of the class-room will blare colour when your posters are up, but the schoolboy's artistic senses will not be fatally ruined at worst, and he will remember those posters.

To many folks of mature years, a " Bradshaw " is a fearsome thing, and it may remain a mystery to the pupil if he takes up its 1,200 pages and tries to " get the hang of the thing " without a few words of general guidance first. Then, so soon as the build of the book, if one may use the term, has been somewhat explained, the schoolboy will find out a good deal by poking about for himself. A word or two, then, as to the general fashioning of the class text-book. There is, first of all, a folder map at the beginning of the book; a glance thereat shows a perfect maze of figures and names which are calculated to appal until the supremely important sentence printed at each side of the map is read: " The figures on the map refer to the pages in the Guide where the Train Services are shown." It is on this map, with its illuminating figures, that the pupil should be taught to rely when he comes to tackle " problems."

On the back of the map appears a very useful decagon-shaped figure indicating the chief lines which possess London termini, and the pages of " Bradshaw " in which the train service of those lines is contained are shown just inside the inner edge of the decagon.

THE MYSTERY OF " BRADSHAW " disappears to some extent when the ideas embodied in the map, the decagon pattern arrangement, and the inner title-page (showing main lines, down and up) are grasped. Pages 1 to 900 (about) then set forth the train arrangements in detail; a series of steamboat advertisements occupies some fifty pages; and then follows—about page 940—an alphabetical steamer-sailing list. This is useful to refer to later, when problems may be set involving train connections to catch steamer services to the near Continental capitals or further afield.

Now as to the actual scheme of class lessons. As already suggested, it is well to begin by dealing with London to Scotland routes, working at the outline maps as we proceed; the pages showing chief towns on those routes are referred to easily, and the teacher can throw out questions as he goes along to find out from his pupils the nature of the *goods traffic* likely to come from each town and district. Perhaps I should here say that the initial lesson of all may deal in crisp fashion with the historical development of inland communication and railway extension. The order in which the teacher takes the chief lines from this point is largely a matter for his own judgment, and may depend a little upon the locality of the school. After the first introduction to the " Bradshaw " text-book,

and when, for instance, the London to Scotland routes have been dealt with, a simple problem may be set for the pupils to work in their evening preparation. For example:

"Two men are going to Edinburgh from London. One leaves Euston at 10 a.m., the other leaves King's Cross at 10.10. Set out their respective time-tables, and say which man reaches his destination first."

Here is a model answer:

	Page	Stop	Time	Line
West Coast Route	384	Euston	10.	L. and N. W. Ry.
	384	Rugby	11.32	
			dep. 11.35	
	385	Crewe	12.59	
			dep. 1.7	
	385	Carlisle	3.48	
	822		dep. 3.50	C. Ry.
	822	Edinbro' (Princes St.)	**6.15**	
East Coast Route	320	King's Cross	10.10	G. N. Ry.
		Grantham	12 10	
			dep. 12.15	
	321	York	1.53	
	612		dep. 2.3	N. E. Ry.
	613	Newcastle	3.40	and
			dep. 3.48	N. B. Ry.
	767	Edinbro' (Waverley)	**6.25**	

Ans. The passenger *via* West Coast Route reaches Edinburgh ten minutes before the other.

The page references follow on to one another from the left-hand column. For example, page 385 shows detailed train run from Euston to Crewe; at foot of this page, alongside the name Carlisle, appear the figures 450, 800, 820. Page 450 substantiates page 385, giving way stations between Wigan and Carlisle; page 800 shows Glasgow and South-Western trains from Carlisle to Glasgow; while 820 sets forth the Caledonian Railway main line, and page 823 indicates the train in question. These cross-reference figures are the guides enabling the pupil to work on from one stage to the next, and I have shown how these are used in working out the actual problem propounded.

Sometimes I have asked the class to state approximate fares for these long main-line runs; this can be done, because the narrow left-hand column shows mileage from end to end. Third-class fare may be counted at a penny a mile.

RAILWAYS AND REALITY.—This is a fairly straightforward problem, but one, nevertheless, which needs a clear head and some power of following up an idea. Evidently it is one which serves to strengthen and bring out the power of reasoning, and therefore, in its way, is fulfilling just that office which geometrical exercises and algebra problems are meant to fulfil. The average schoolboy tackles such a puzzle with more zest than a mathematical one, because it is a *real thing not a great way off his outward life.* At best he is not burningly interested in a statement beginning "Thirty-eight years ago X wa fourteen years younger than his father," and en ing up, "find the age of each." It may exci a casual interest in him to attempt to show th the square on the hypotenuse of a right-angl triangle is equal to the sum of the squares c the other two sides. But *enfin?*

A friend of the writer, when beginning "Bradshaw" course, asked casually if anyone his class had any picture postcards of locomotive Forty were forthcoming at once, or one per he of the pupils. Even in these superior days t schoolboy does not despise such material ite as food and drink; wherefore the introduction in a "Bradshaw" problem of such a subtle lure "Arrange for the journey to be done so that t passenger can get his meals on board the trai or shall have time to get them at stations *route,*" is not one to be altogether neglected. have known (not once or twice, but pretty ofte a boy, to whom Euclid was an abomination, a algebra a thing of loathing, get up early so to hammer at a "Bradshaw" question. A this was not for love of marks, but because h desire was to triumph over the stumbling-blo which faced him.

THE VALUE OF IT ALL.—The geography of t British Isles can undoubtedly be taught in th fashion as a practical matter. But the greate value of the system which I am endeavouring explain is this—it tends to bring out the *reasonin faculties* of the pupils, and especially those of th non-mathematically inclined. It is work whic eminently is worth something for those whos reasoning powers are not touched or draw out by the acknowledged means through whic we seek to foster them. I have heard an edu cationist say, "Science classes are apt *to evap orate in mere interest.*" My experience has bee that this fashion of teaching geography has no resulted in the mere awakening of interest and o nothing more.

I should say, in conclusion, that the idea o this method of teaching is not my own. To th best of my knowledge, it was originated by m colleague at Bootham School, York, Mr. O. I Baynes, and was carried on there with marke success by Mr. E. B. Collinson.

PARAPHRASING IN PRACTICE.

By NORMAN L. FRAZER, M.A.
Whitgift School, Croydon.

I.

THERE will be no attempt in the prese articles to defend the practice of par phrasing. The writer's task is f humbler; he has merely to consider the difficu ties of this exercise and to suggest workad methods of instruction. Those teachers who ha doubts as to the efficacy of paraphrasing as instrument for fashioning literary discernme and appreciation are invited to read the artic which Mr. J. H. Fowler contributed to THE SCHOO

RLD for February, 1906. He discussed general ıciples; I limit myself to the actual conditions lass-room exigencies. For although some are to choose their methods of teaching English, re are others who are tied down by the regu- ons of examinations which demand this par- lar mode. That some difficulty has been ex- enced by this latter class of teachers is quite ent from the recently published reports of examiners for the Oxford Local examinations. he case of preliminary, junior, and senior can- ıtes, they had the same complaint to make. y found in the preliminary grade that "the k spot in the answers on the book of Scott usually the paraphrasing, in which both com- ition and punctuation left much to be de- d"; in the junior grade, that "in composition, greater number of candidates appear to have ıd considerable difficulty in doing the para- ıse"; and lastly, in the senior grade, that e paraphrasing of Wordsworth's sonnet ed too hard for the vast majority of the candi- s; most of them grasped the general idea out understanding the significance of the in- dual phrases. . . . Others appear to have no of what is meant by a paraphrase." After a report no further apology seems needed for present articles.

is probable that the reason of the general re here exposed is to be found precisely in last sentence we have quoted: that many ve no idea of what is meant by a paraphrase." our own part we do not think that it could lefined and explained more ably or concisely in the words of Mr. H. C. Bowen.[1] "Para- ısing," he says, "is the unpacking and ex- ling clearly and at large of the whole mean- of a passage, which in the author in question pressed in a brief and condensed or figurative , or perhaps at times rather suggested than essed. It requires in the pupil a knowledge e real force of the allusions, and of the bear- of the passage as a whole on its context, and occasion on which it is used. It requires an eciation of the exact force and intention of metaphors, similes, and epithets, and a con- ısness of that *associated* meaning or colour h certain words or phrases acquire, and h are brought out most distinctly in the con- ts between so-called synonyms." So strongly ve feel that herein lies the whole meaning of phrasing that the whole of our ensuing re- ks will be but a commentary on this text, and ndeavour to suggest a continuous course by h, in the senior stage, a pupil shall come in measurable distance of this high ideal.

the preliminary stage—if we may retain a entional and fairly convenient differentiation e difficulties will probably be found rather in general elements of composition than in the tness of paraphrase. This was evidently the in the examiners' report from which we have ed; and we find it very difficult, therefore, not to transgress our immediate limits in this stage. To begin with, it would seem that these young pupils must first be taught to reproduce the general sense of a passage in plain language; the oral reproduction of a prose anecdote or a verse fable will provide a useful exercise in elementary punctuation, while the elucidation of the general idea must necessarily precede the consideration of the particular phrase. For this preparatory work it will be found best to begin by reading and studying the selected passage in class, and then to proceed to passages which have not been so read and studied. Even then there is something to be done before tackling a paraphrase. It is to render narrative or romantic verse into prose order, the chief advantage from such an exercise being that the charm of vocabulary is retained, and the essential beauty and need of the original made apparent.

When at last the preliminary pupil is required to make a real paraphrase, there may arise in the teacher's mind a doubt as to whether so formal an exercise is to be divorced from the ordinary literature being read or not. The question was fully and fairly considered by Mr. Fowler in the article to which we have already referred: the only remark that need be made here is that in a rational course the difficulty should hardly arise in this stage at any rate, seeing that the content of the literature read will hardly be of that sacred fineness which tampering profanes. For what will a boy of this age be reading? At the best, that poetry of which Scott, Longfellow, and Macaulay are types. From the point of view of his development in the art of paraphrase, why should these be his types? Because by reading them he will best and most easily make the acquaintance of the stereotyped phraseology of our poetic diction, and get the first glimpses of that *association* of phrase which is so important a part of literary culture. More than this, he will have taken the first step into that land of classical allusion, outside which appreciation of our greatest literature is hardly possible. With the simplicity of construction and vocabulary suited to the telling of a tale, it will be easy to analyse, to grasp the felicity of a simile, and to distinguish it from a metaphor, and to note the significance of epithets.

Our preference for such authors and the subsequent advantages to be derived from reading them at this stage may be aptly illustrated by taking a question set in the Cambridge Local preliminary paper of 1905.

(a) Explain the following allusions:

"Arthur's slow wain." "My neck-verse at Hairibee." "Triumphant Michael . . . trampled the Apostate's pride."

(b) Give the meanings of the following words:

Ban-dog, barbican, fleur-de-lys, chancel, gramarye, cresset.

Now, although we are sure that any examiner could have chosen even better instances from the "Lay of the Last Minstrel" to have shown the value of such reading as an introduction to

[1] "English Literature Teaching in Schools," p. 32.

the art of paraphrase, yet here, in this extremely limited space, are to be seen the words and phrases which are among the current coin of our literature. But, after all, the question we have cited was not intended as a test of paraphrasing. From the same paper, however, we take a question which we think a reasonable type of what should be expected at this stage.

Give in simple prose the sense of this passage:

The Ladye sought the lofty hall,
Where many a bold retainer lay,
And, with jocund din, among them all,
Her son pursued his infant play.
A fancied moss-trooper, the boy
The truncheon of a spear bestrode,
And round the hall, right merrily
In mimic foray rode.

Now, what was it that the examiners expected from the candidates to whom this passage was set? If we mistake not, they desired, above all, a plain, straightforward piece of prose which should make the sense even more plain than in the original; they desired correctness in elementary notions of punctuation, and at least the proper distinction between the comma and the full stop. But were it not for their report, it might have been thought that so much would have been secured as a matter of course, and that the outstanding difficulties of the piece to preliminary candidates would have been the retention of the essential idea conveyed by the epithets and the approximation of synonym in the case of one or two nouns. We fear, indeed, that one of the chief causes of failure at this stage lies in the fact that in reading such a passage a young pupil intuitively seizes the general sense, and that his teacher, from his more mature point of view, is hardly able to realise the necessity for that further study which will elucidate the special meaning of every word. We would suggest, therefore, that special exercises are needed to bring out by careful comparison the exact differences of meaning in so-called synonyms, as well as definite illustrations of the meanings of such semi-literary words as *din* and *foray*.

How excellent an author Scott is for elementary practice in paraphrasing, and how he lends himself to the treatment suggested, is shown even better by the following questions taken from the same stage of the same examination for the preceding year:

(1) *Give the meanings of the following words:*
Donjon, falchion, palmer, pardoner, pavilion, portcullis, scutcheon, sewer.

(2) *Explain the following sentences:*
(*a*) Scantly Lord Marmion's ear could brook
The harper's barbarous lay.
(*b*) He shall shrieve penitent no more.
(*c*) Betwixt the baron and his host
No point of courtesy was lost.
(*d*) Great events were on the gale.
(*e*) No hope of gilded spurs to-day.
(*f*) *Shake not the dying sinner's sand.*

(3) *Give in simple prose the sense of the following lines:*

The warriors on the turrets high,
Moving athwart the evening sky
Seem'd forms of giant height:
Their armour, as it caught the rays,
Flash'd back again the western blaze,
In lines of dazzling light.

We will now indicate from the authors we have mentioned types of exercises which in our opinion will be found a useful training in the art of paraphrase, suitable for preliminary candidates:

(1) Make a list of similes drawn from the author's observation of outdoor life.

(2) Discuss the *suitability* of the following expressions (from Longfellow):
(i) The bivouac of life.
(ii) The sands of time.
(iii) The belfry of his brain.
(iv) Whose feet are shod with silence.
(v) The corridors of Time.

(3) Comment upon Macaulay's use of epithets in the "Lays."

(4) Tell in your own words the story of
(*a*) The wreck of the *Hesperus*.
(*b*) The battle of Lake Regillus.
(*c*) The Combat (in the "Lady of the Lake").

(5) Explain the following allusions: *e.g.*, classical allusions from the "Lays."

(6) Give three examples of metaphor from the "Lord of the Isles," and show their appropriateness.

We will conclude this article by giving a few examples of suitable passages for paraphrase proper, so graded in difficulty that the easiest will ensure the need of stating the general sense in properly punctuated prose, while the most difficult will demand some elementary notions of the value of epithets, the appropriateness of imagery, and the most familiar classical allusions. In our next article we will take a step further and consider the requirements of the junior candidate.

(1) *Give in simple prose the sense of the following lines:*

His hair is crisp, and black, and long,
His face is like the tan;
His brow is wet with honest sweat,
He earns whate'er he can,
And looks the whole world in the face,
For he owes not any man.

(2) *Reproduce in your own words:*

But jaded horsemen, from the west,
At evening to the Castle press'd;
And busy talkers said they bore
Tidings of fight on Katrine's shore;
At noon the deadly fray begun,
And lasted till the set of sun.
Thus giddy rumour shook the town,
Till closed the Night her pennons brown.

(3) *Reproduce the sense of the following passage:*

Riches and lands, and power, and state—ye have them keep them still.
Still keep the holy fillets; still keep the purple gown,
The axes, and the curule chair, the car, and laurel crown
Still press us for your cohorts, and, when the fight is don
Still fill your garners from the soil which our good sworn have won.

Still like a spreading ulcer, which leech-craft may not cure,
Let your foul usance eat away the substance of the poor.

(4) *Give the exact sense of the following in your own words:*

He did not feel the driver's whip,
Nor the burning heat of day;
For death had illumined the Land of Sleep,
And his lifeless body lay
A worn-out fetter, that the soul
Had broken and thrown away.

THE STUDY OF THE LIVING PLANT.

SIMPLE EXPERIMENTS FOR "PRELIMINARY CERTIFICATE" STUDENTS.

By E. STENHOUSE, B.Sc. (Lond.),
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I.

THE syllabus for the Preliminary Examination for the Elementary School Teachers' Certificate, 1908, contains a satisfactory regulation to the effect that no candidate will be allowed to take elementary science who does not present a certificate of having had at least thirty hours of systematic practical work. Of the two alternative syllabuses in science, the second is concerned with the study of plant life, and at its head we find the further significant statement that "the purpose of the examination will be to give an opportunity to the student to show the knowledge he has acquired, by his own observational work, of the dependence of any living thing upon its surroundings."

A study of the syllabus shows that it affords scope for practical work of a highly valuable character, and without the use of any expensive apparatus.

In the present and two following articles a course of suitable experiments and observations will be outlined, in the hope that it will furnish useful guidance to teachers preparing candidates for the examination in question.

It may be pointed out that successful work in practical botany is almost impossible unless the habit of making careful drawings and precise descriptions is insisted upon from the first. The drawings should be outline sketches *to scale*, made with a rather hard pencil in a book kept exclusively for the purpose.

THE GROWTH OF A PLANT TO MATURITY.

THE SEED.—Soak a number of broad-bean seeds in water for a few days. Note the increase in size caused by the absorption of water. Compare the absorption (by capillarity) of water by pieces of blotting-paper, cloth, starch, &c., which have one corner dipping into water.

Examine the soaked seeds (Fig. 1), making out the black *stalk-scar*, along one edge, and a minute hole (*micropyle*) at one end of the scar. The hole is revealed by *the drop of water* which exudes from it when the soaked seed is squeezed. Strip off the seed-coat, noting (*a*) the peg-like *radicle*, with its point (apex) directed toward the micropyle; (*b*) the *plumule*, a continuation of the radicle and lying between (*c*) the two fleshy *cotyledons* (Fig. 2). Scrape the surface of

FIG. 1.—A broad-bean seed. *A*, side view; *B*, edge view; *st.sc.*, stalk-scar; *m*, micropyle. (× ⅔.)

cotyledon, and apply a drop of iodine solution. The blue colour shows the presence of starch.

Remove the seeds from a number of sycamore fruits (Fig. 3). Soak them in water for a day and then carefully unfold the contents of the seed-coat. Notice, in the position of the cotyledons of the bean (*i.e.*, at the top of the radicle) two green leaves—evidence that the bean cotyledons also are seed-leaves, disguised by the accumulation in them of starch and other stored food. Leaves, however disguised, which are already present in the seed, are called cotyledons. Plants like the bean and sycamore, the seeds of which contain two cotyledons, are called dicotyledons.

Examine in the same way seeds of lupin and vegetable marrow.

GERMINATION OF SEEDS.—Plant soaked seeds of broad bean, lupin, and vegetable marrow in damp sawdust, keep them warm, and examine at intervals of a few days. Line a tumbler with blotting-paper, put water in the tumbler to the depth of

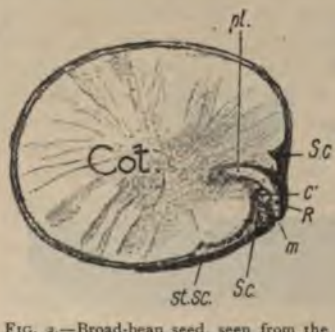

FIG. 2.—Broad-bean seed, seen from the inside, after the removal of half the seed-coat and one cotyledon. *Cot.*, the inner face of remaining cotyledon; *C*, area of attachment of other cotyledon; *m*, micropyle; *pl.*, plumule; *R*, radicle; *S.c.*, seed-coat; *st.sc.*, stalk-scar. (× 1.)

FIG. 3.—A pair of sycamore fruits. (× ⅔.)

an inch, and drop between the glass and the blotting-paper (kept wet by capillarity) a number of mustard seeds. The seeds should be well above the actual surface of the water. Keep in a warm place, and take care that the bottom of the blotting-paper is always in water.

Observe the growth, vertically downwards, of the radicle of all the seeds; then later (why later?), the emergence and upward growth of the plumule, and (in the case of all except broad-bean seeds) the withdrawal of the cotyledons and their obviously leaf-like character (Figs. 4 to 8). Notice

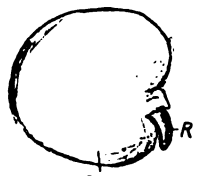

FIG. 4.—An early stage in the germination of a broad-bean seed. *R*, radicle; *s.c.*, seed-coat. (× ⅔)

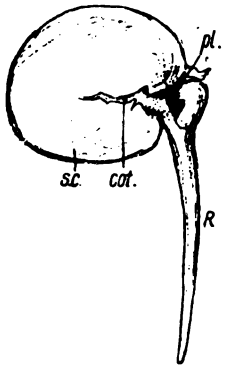

FIG. 5.—A slightly later stage in the germination of a broad-bean seed. *cot.*, cotyledon; *pl.*, plumule; *s.c.*, seed-coat. (× ⅔.)

the hook-like appearance of the bean plumule before it gets above ground. What is the advantage of the hook?

On the mustard radicles (Fig. 8), observe the fine, white, fluffy *root-hairs*. They are present on the other radicles as well, but may be spoiled by being pulled out of the sawdust.

As the bean seedlings grow in size, notice the shrivelling up of the cotyledons, still below ground and enclosed in the seed-coat. In all cases notice the development of the plumule into the young stem of the seedling, and that of the radicle into the young root. Both stem and root presently

FIG. 6.—Three stages in the growth of the yellow lupin. On the right the cotyledons are still enclosed in the mottled seed-coat. In the middle plant the cotyledons are spreading out; the first foliage leaves have not yet unfolded. On the left, the first two foliage leaves are unfolding, and the cotyledons have spread out flat. (Slightly reduced.)

branch, and the stem bears "foliage" leaves of shape differing from that of the cotyledons (Fig. 5).

Tabulate the differences between the seedling bean plant and the bean seed.

It will be seen that the main regions of the *ture plant are already to be recognised* even in the seed. The young plant in the seed is called the *embryo*. It consists of plumule (young stem) radicle (young root), and cotyledons (first leaves)

Bean Seed { Seed-coat; Embryo { Plumule; Radicle; 2 Cotyledons.

WORK DONE IN GERMINATION.—Note that each seedling overcomes resistance in bursting the seed-coat, overcomes friction in the growth of its root and rootlets through the soil, and overcomes gravitation in raising its plumule (and often cotyledons) well above the level at which the seed was planted. What is the source of the energy giving it the power of doing this work? The energy of a steam-engine comes from the burning (oxidation) of the fuel in the boiler-fire. Is there any evidence of burning, or oxidation, in germinating seeds?

Keep small seeds warm and moist until they begin to germinate, then half-fill a bottle with them. Fit the bottle with a tight cork through which passes (tightly) a thermometer, so arranged that when the cork is in position the bulb of the thermometer is buried in the seeds. Keep the bottle for a few days in a uniformly warm place

FIG. 7.—Germinating vegetable marrow seed. *p*, the peg by which the seed-coat (*s.c.*) is held down to allow the cotyledons (*cot.*) to be withdrawn. (× 1.) (After Bailey.)

FIG. 8.—Mustard seedling, showing root-hairs and cotyledons (× ½.)

and compare the thermometer in the bottle with one just outside. The seeds are warmer than their surroundings.

Take out the cork after a few days, and at once plunge in a lighted taper. The flame is extinguished, showing that not enough oxygen for combustion is present. Plunge another lighted taper into a bottle of similar size and shape, but in which no seeds have been kept, and compare the result. Pour off some of the gas (remaining in another bottle of seeds) into a test-tube containing a little clear lime-water, and shake the tube. A milkiness indicates the presence of carbon dioxide. The absorption of oxygen, evolution of carbon dioxide, and liberation of heat are evidence that slow burning (oxidation) is taking place in the seeds.

Compare these changes, wrought in air by germinating seeds, with the similar changes

ught by animals. Show that the air breathed from the human lungs is warmer, moister, contains less oxygen and more carbon dioxide n the surrounding air. What is evidently the rce of the energy displayed by animals?

HE CONDITIONS OF GERMINATION.—Make eximents to find what conditions are required to ken seeds into growth.

) *Water.*—Keep seeds dry, but warm and exed to the air. The seeds do not germinate.

) *Air.*—Pack soaked seeds closely with wet to exclude air from them, but keep them m. They do not germinate.

) *Temperature.*—Plant various seeds in loose, np earth in the garden in winter, and take the perature of the adjacent soil at intervals by hing in a thermometer. Plant similar seeds in ing and summer, and make notes of any relaship observed between the temperature of the and the time required for germination, speci- g the kind of seed used in each case. In ing, compare the soil-temperatures on the two s of a hedge, and notice on which side the ng plants come up most freely. A hedge run- g east and west will yield the most striking lts. Also take regular thermometer-readings

FIG. 9.—How to use a round piece of blotting-paper for filtering.

the top and bottom of a slope, &c., and try discover if a difference of temperature affects the date of first appearance of spring plants, the abundance of certain plants.

Make a list of the principal conditions thus n to be necessary for germination.

OOD STORED IN SEEDS.—Cut open soaked ds of bean, pea, lupin, vegetable marrow, stard, sycamore, and grains of maize, wheat, barley, and test them with iodine solution. ke a list of those in which the production of lue colour shows the presence of starch. Make ther list of seeds which, although they appear ontain stored food, show no starch.

HE PROPERTIES OF STARCH.—(*a*) Stir up dry starch with cold water and filter it care- (Fig. 9). Test the liquid which passes ugh the filter-paper, by means of iodine solu-, and show that starch is absent. Starch is, efore, insoluble in cold water.

) Rub up with water as much starch as will on a shilling, so as to form a thin cream, and pour on it a cupful of boiling water. The ch swells up, and much of it dissolves in the er. Add a few drops of the starch solution about half a pint of cold water, and test it by adding a little iodine solution. Starch is somewhat soluble in boiling water.

THE DIGESTION OF STARCH.—Take a dozen barley seedlings, with roots about an inch long, and pound them up with a little lukewarm water. Filter off the solution, add a few drops of it to a few drops of the weak starch solution obtained in the last experiment, and keep the mixture lukewarm for five minutes. Then test with iodine solution. No starch can be detected.

(*b*) Add half a teaspoonful of saliva to as much weak starch solution, and keep the mixture lukewarm for five minutes. Test as before; no starch can be detected.

In each case the starch has been digested by being changed into a kind of sugar. The materials in the barley-extract and the saliva respectively, which changed the starch into sugar, are called ferments. The stored starch in seeds must in every case be digested by a ferment before the growing plant can use it as food. Chew a germinating pea, and notice the sweet taste, due to the sugar which has formed in it.

THE PROPERTIES OF ALBUMIN.—Beans and many other seeds contain stored food very similar to albumin or white of egg. Examine the white of a raw egg. Stir it up with water. It dissolves. Stir up with water a little of the stiffened white of a boiled egg. It is insoluble.

THE DIGESTION OF ALBUMIN.—To a cupful of water add twenty drops of strong hydrochloric acid. Stir, and add a small pinch of pepsin, a yellowish powder obtainable from chemists. Now put in a few small pieces of boiled white of egg, and keep the mixture lukewarm for an hour, stirring at intervals. The albumin is digested by a ferment in the pepsin, and dissolves in the water.

Albuminous foods in seeds are digested in a somewhat similar manner before they are used as food by the plant.

THE USE OF THE SOIL.—Notice that plants growing from seeds in damp sawdust or clean sand only do not attain their full size, but that those growing from seeds containing stored food live longer than those from seeds without stored food, and only begin to droop when the stored food is almost exhausted.

Young animals (*e.g.*, chicks) which develop from eggs containing an abundant store of food are like the young bean plant in being able to grow to considerable size before they need to seek food for themselves. On the other hand, a frog's egg (which contains but little stored food) may be compared to a mustard seed: both tadpole and mustard seedling must begin to obtain their own food whilst they are still very immature.

Contrast the condition of plants grown in soil, and take weekly measurements of the height of average bean seedlings. Plot the results on squared paper. Also, each week take up an average seedling, dry it thoroughly in the oven, and then weigh it. Draw a curve on squared paper, showing the rate of increase in weight, and compare it with the curve of increase in height.

THE REFORM OF LATIN TEACHING.

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II.

IN a previous article I argued that the reform of Latin teaching needed two supports before it had a fair chance of success. These are:

(i) Union among reformers.

(ii) Increased knowledge of the mother-tongue among learners. This would make a reduction of the curriculum necessary during the earlier years of school life.

I have been told since writing my first article that the *Classical Review* is prepared to offer facilities for the discussion of method. I trust that teachers will make the most of the advantage that is now open to them. It may perhaps be of some service if I mention one or two questions which I think reformers would do well to discuss and, if possible, to solve.

In the first place there is the relation of Latin to the teaching of the mother-tongue. How far is ignorance of the latter a serious drawback, and are there any means of comparing the rates of progress made by pupils (*a*) with and (*b*) without a fair knowledge of English on its formal side?

Another point of great moment is the age at which Latin should be begun. It is now generally agreed that Latin and French should not be imposed together on young boys of nine or ten, but it is to be feared that in the mad rush for entrance scholarships to the public schools this excellent rule is not carried out in practice. My own experience makes me believe that boys can begin Latin at twelve, Greek at fourteen, specialise at sixteen, and be quite ready to compete for university scholarships at eighteen or nineteen. In the case of boys who do not intend to specialise in classics, a very fair standard can be reached under the same curriculum by the seventeenth year.

So much for general principles. It remains to mention a few details.

If Latin be taught orally, and grammar be studied during the early stages *pari passu* with the use of the spoken tongue, great care is necessary that such grammar as is taught be known thoroughly. I have found the best rule to be, "Make the boys learn the genitive and gender, &c., of every noun that occurs in their work," and this rule, *mutatis mutandis*, ought to be applied universally. Even so it is necessary to sum up in a logical order such grammar as has been learnt. Personally I have found the second year the proper time to begin this systematic study of grammar, but it may well be that either an earlier or a later date is preferable. The point needs working out, and a final decision can only be reached by the collective experience of many teachers.

It is a curious fact, and one for which it is hard to give a psychological reason, that a boy may be able to speak Latin with fluency and correctness, and yet make monstrous mistak when he has to express himself on paper. suppose that special brain centres need cul vating in order to write Latin, whether be free composition or translation from Engli Be this as it may, the question, when writi ought to be the object of special care, has to solved. My own practice is to do as little writt work as possible during the first year, rat more in the second, and to make a special of it in the third. During the third year a f minutes of each lesson are set aside for t translation, without any kind of help, of ha a-dozen sentences illustrating grammatical di culties or peculiarities. Astonishing progress c be made by this method in a few weeks. S themes and translation of continuous pieces a of course, given in addition to this drill. On more, however, I would submit that collecti experience is necessary to find out the plan whi works best in the majority of cases.

I have been much impressed with the value free composition, whether from pictures or as sort of essay. But I have been equally impress with the wild mistakes and slovenly work do by most boys unless care be taken not to gi them too free a hand. The best kind of exerci for the earlier stages seems to consist in chan ing the person or tense of a story which h previously been learnt by heart. The master w certainly encourage all efforts at introducing ne variations, but the tendency to write rubbi should be severely checked at the outset. believe that this tendency is due in many cas to imperfect knowledge of English, or rath of the general principles which are part a parcel of all languages. Let these be taught b means of the mother-tongue, and the mistakes which I refer will not occur in free composition

Opinions have long been divided whether th reformed pronunciation is better, from th teacher's point of view, than the English. Th general tendency at the present time is in favo of reform. The reformed pronunciation has, addition to its being correct, one great advantag which is of especial importance to a teacher wh is trying to use oral methods. It is practical phonetic; in general, only one sound correspon to one letter or group of letters. Oral teachi is twice as effective if the reformed pronunci tion be adopted, and care taken that every b learns to speak clearly, accurately, and with d attention to quantity. It is by paying attenti to accurate pronunciation that the errors written work, which I have mentioned abov can be best avoided, for each sound will be d finitely associated with a fixed spelling. Fren teachers have been obliged to invent a phone script in order to teach very young boys; but the reformed pronunciation of Latin we have series of sounds which make the original scri perfectly satisfactory. Here I would remark th the reformed pronunciation brings Latin into li with modern languages. The difficulty found some boys in acquiring it is, so far as I c

, due to their ignorance of a correct French nciation. At any rate most of the grum- I have met have been teachers of boys who learning Latin but not French, or, at French with a very inaccurate pronuncia- Be this as it may, teachers who have t with both pronunciations would do well lare their experiences.

m inclined to believe that the writing of prose has, in the past, been much too nical an exercise, a mere application of tical rules rather than literary composition. he best pupils, such as those taking classical rs at the university, are as a rule able to e from the bad habits which arise from ng a literary exercise as mere drill in gram- al formulæ. This fault was noticed cen- ago by Roger Ascham. I would suggest translation of difficult English into Latin be preceded by the learning by heart of r amount of good Latin prose. Some rs in girls' schools have achieved great ss by insisting that the pupil should try mmit to memory as much as possible of ader, as it is being prepared at home and ss. Only those who have tried know how ly this habit develops, and only those who tried know how greatly this habit, when formed, benefits the pupil's power of trans- from English into Latin. This is another which I would urge all teachers of Latin nsider.

ally, I should like to point out the great ntage of the pupil's reading as many plain as he can, as soon as he reaches the stage he can study the Latin authors. By all s let the power of initiative, of doing inde- nt work, be encouraged to the utmost. rn teachers are apt to make all work too to sweep away the difficulties, and let the remain in a passive state without exerting lf or exercising his intelligence. At the last rence of Headmasters the use of plain texts discussed and received with favour by all nt. It would be interesting to know whether avourable opinion then expressed has been ed in practice, and, if so, with what results.

ave mentioned in this paper a few points teachers to thrash out so as to im- the methods of teaching Latin and Greek esent in vogue. The following objection has made, and will, in all probability, be made . The present methods are the result of ries of evolution; they have been improved the utmost, and if they are not a success, ng will ever be satisfactory. It would not fficult to show that the present methods are ormal; that they are the product of a period education was a farce, and when the ideals healthier period had fallen into decay. But I not lay any stress upon this, for it is enough int out that conditions have entirely changed in the last thirty-five or forty years. The culum has been growing wider and wider; the time allowed for Latin has steadily decreased. Granted that the methods of forty years ago were successful then, they cannot produce the same, or even nearly the same, result at the present time. Unless some means be found of adapting the teaching of Latin and Greek to modern needs and conditions, classics must, and will, disappear entirely from the school curriculum. There are doubtless many who contemplate such a contingency with intense satisfaction. There are also many—and these include the majority of parents—who are apparently indifferent. I ask all such to study the question and try to reach the true conclusion. But I urge those who sincerely believe that the loss of classics would be an educational calamity to rouse themselves, and to bring their united efforts to bear upon the end which they desire to achieve.

POSTSCRIPT.—Since writing my two articles I see that the Report of the Board of Education for the year 1905–6 lays stress upon the learning of English. Mention is made of the fact that ignorance of the mother-tongue is hindering language teaching in general. It is some satisfaction to know that the Board is aware of the state of affairs.

SECONDARY AND HIGHER EDUCATION IN THE ISLE OF MAN.

THE future historian of this generation will certainly not be gravelled for lack of matter when he comes to write his chapter on Education. With the doubtful exception of the Taunton Commission Report of forty years ago we possess no picture of the state of education at any former time so complete as that contained in the numerous reports by more or less eminent hands which have been issued during the last few months. Mr. Cyril Jackson's report upon the schools of the Isle of Man is the latest, and is sure of an honourable place in the series. In the masterly and instructive handling of elaborate statistics it is at least equal to any which have preceded it. The ten clear and significant diagrams are a special feature of the work.

Out of a population in the island of about 54,000 people, 747 are in secondary schools. But 129 boys in King William's College, a well-known non-local and first-grade school, come from outside the island. Not counting these, 319 boys and 301 girls, together with 88 pupil teachers, are in schools where higher education is given, 13 per thousand in all. The proportion at first sight looks reasonable, but as 187 of these pupils are under twelve years of age the number of those really receiving secondary instruction cannot be put at more than 519, or 9·5 per thousand. Mr. Jackson's figures enable us to pursue the matter further. Of the 519, at least 120 are under fourteen years of age; not more than 400 are above that age. If by the side of this result is set the fact that in the public elementary schools of the island there are no fewer than 209 children, also over fourteen years of age, who will in a

year's time be reduced to a mere remnant of 20, the existence of a gap in the system which the ordinary elementary school cannot adequately fill, and the secondary school does not, is established. Mr. Jackson joins with Prof. Sadler in suggesting the supplementary class of the Scottish code as the remedy.

Many interesting questions are raised or suggested by this report, of which perhaps two or three may be selected for mention here. The Board of Education's new pupil-teacher system has set thousands of boys and girls, aged from twelve to eighteen, travelling almost daily to and fro between the sparsely populated country districts and large town schools and centres. It is far from being an unmixed good, and the wonder is that no very articulate protest has as yet been made. Douglas is the natural educational centre of the Isle of Man, and yet, partly for a reason which, being peculiar to the island, need not be stated here, but also for reasons which are generally applicable, Mr. Jackson declines to recommend concentration on Douglas. "In the winter, trains are inconvenient: for example, pupils from the north leave Ramsey Station at 7 a.m., and reach Douglas three-quarters of an hour before school opens, and do not get back to Ramsey till 6.50 p.m. To start in the dark and cold, after a hasty breakfast, is bad for growing children, especially girls; and a railway journey is not a desirable addition to the fatigues and mental excitements of a scholar's day." The instance can probably be paralleled in nearly every county in England, and it is well that the attention of teachers and administrators should be directed to this aspect of present educational policy.

One other point of similarity between the Isle of Man and the English counties to which Mr. Jackson refers is the existence of numerous small educational endowments, each attached to some one parish or group of parishes. Many of these no longer serve their original purpose, rate aid having replaced them in elementary education, and yet the difficulty of linking them up in any general scheme of secondary education is so great that there is a danger of their becoming derelict. Mr. Jackson's suggestion for their utilisation is that the income should be pooled in a common fund to cover a wider area and to be expended in scholarships. It is desirable still to maintain the local association, but most of these endowments are so small that the income would require funding for some years in order to provide a sufficient sum for a scholarship; and, moreover, the field of selection furnished by most parishes is so small that, were the scholarship limited to such an area, there is a great probability that it would be wasted on an unworthy or unsuitable candidate. By pooling the endowments of several parishes, proper competition could be guaranteed, and in a period of years each parish would get its due share.

The last point suggested by this valuable report which we can find space to touch upon is the vital question of the duration of the secondary school course. There is no definite local industr in the island which claims the boys at an earl age; indeed, the secondary-school type of bc often migrates to the mainland to find emplo ment. Compare this economic condition wi that prevailing, for example, in Liverpool, whe the demand for boy clerks between the ages fourteen and sixteen is almost unlimited, and may be said that in the island, if anywhere, the is a favourable prospect of the secondary schoo being allowed to carry their boys to the end the normal four years' course. Yet what a the facts? Taking the total numbers and ag of the boys in all the secondary schools of Live pool and of the island respectively, we find th in Liverpool rather more than half, and in th island rather less than half, are in the schoo by their twelfth birthday. Thereafter in bot cases the numbers rise rapidly for the thirteent and fourteenth years. There is then in the cas of Liverpool an equally rapid fall; half-wa through the fifteenth year thirty per cent. hav gone; by the end of the sixteenth, another fift per cent. have followed them. In the case c the island the fall is delayed, but only for hal a year; nearly thirty per cent. leave before the are sixteen, more than fifty per cent. more hav gone by the time they are seventeen.

Substantially the same state of things is re vealed in all the reports lying between Prof Sadler's Liverpool report, from which some o the above figures are derived—the first of th series containing statistical data—and Mr. Jack son's report, which is the latest to be issued. The inevitable deduction surely is that we must re consider our definition of the secondary school. For reasons which are partly social, but mainly economic, the four years' course from twelve to sixteen seems at present an ideal which can be realised only in exceptional circumstances. The schoolmaster is compelled to accept the conditions of the social organisation which he serves; he can only expect to modify them by slow and indirect methods; and while still preserving our ideal and seeking to attain it, we shall be wise to make our account with the fact that for most of our boys their school career must terminate before they are sixteen, and to endeavour in the three years left to us to bring our work to completion.

German Grammar for Science Students. By Dr. W. A Osborne and E. E. Osborne. viii+106 pp. (Whittaker. 2s. 6d.—If this were only a little better, it would be quit a useful book; it should have been submitted in proof t someone with a really good knowledge of the language and awkward mistakes might have been avoided and th general arrangement improved. German *ä* is not pro nounced like *a* in *fame*, nor *ch* always like *ch* in Scotch *loch*; *der Gush* is not German at all; *Bercherglas, Häne Reagengläschen, Rörchen, schwefelsäures*, are a few mis prints out of many; *ich habe geblieben, fünftes un sechstes Hefte* are grammatical errors. The lists in th appendix should prove useful. That *Bauchnaht* is botanical term is new to us.

IE GERMAN UNIVERSITIES.[1]

ATIVELY to the State, the German iversity stands midway between the com-ete autonomy of the English university State-servitude of the French *faculté*. Its s are appointed and paid, and their ac- supervised, by the Government. At the e it is a free scientific corporation. Its re is intellectual liberty. Its students like those of Oxford and Cambridge, l in the pursuit of truth by social and ical prejudices.

atmosphere is freedom, so its goal is, ider sense of the word, science. It is academy (an institution for the extension ific knowledge and the organisation of labour) and a school, and it is the former istic which tends to be emphasised. As its prime object is not the professional aimed at by the French *faculté*, nor, as satisfaction of a social demand for a breadth of culture. It comprises both t its prime object is science, science as s to the acquirement of an independent , that is, to the emancipation of man-

r "note" of the German university is to the intellectual leadership of the The terms professor, and scholar or in-r, are almost always implied in one The university is the brain of the So, too, it claims to act as a public e, an office which the Church, immersed ruggle for power, has abdicated. The action, says Goethe, is always without e. It is the scholar alone, withdrawn turmoil, who can appreciate human nd these days of supersensitive national-easingly demand this guidance of the free.

the ideal; but in Prof. Paulsen's pages, en elsewhere, there is sometimes heard of foreboding. The old simplicity of life is gone, and the change is reflected tion. Student-life has lost much of its emocratic character. In the greater uni- large salaries, the adoption of the of fashionable society, and the love of l decorations have broken down the old between teacher and pupil.

ws in the system itself are discussed by r with much candour. Extending his he notes the gulf fixed between the m and the university; on that side re- and over-pressure resulting in "school- "; on this side liberty unrestrained. In rsity, idealism has its natural offset in England we should call a certain want icalness. Professional pride tends to e teacher in the investigator pure and nd this, and the extremely abstract char-acter of the work, tend in turn to an undue narrowing of the scope of education. Of school-masters in particular it is complained that they are too often mere technical specialists.

Such is the *substantifique moelle* of Prof. Paulsen's book, almost in his own words. It is a work which no one interested in education should neglect. Perhaps its chief merit lies in its grasp of principles, and its lucid exposition of them, so that the reader will hardly close it without feeling that his opinions have gained in precision and unity. The treatment is always historical and to some extent comparative. The book, which is never dull, is a model of clear arrangement, and it has a serviceable index and a bibliography.

[1] man Universities and University Study." From the German Paulsen. xxxii+435 pp. (Longmans.) 15s. net.

A STUDY OF EURIPIDES.[2]

EURIPIDES is becoming the centre of interest in the Greek drama. His high reputation among the ancients is well known, but in modern times he has found less favour. M. Decharme does not take the same way of vindicating him as Dr. Verrall; he keeps fairly within the old limits of criticism, and he is consequently reduced to the necessity of calling in the "situations" to save the "plot." No one can doubt that Euripides is a master of the dramatic situation; he is as great a master of that as Sophocles, but from a different standpoint, because he regards fate emotionally. It is the plot which has called forth the most scathing condemnation of the art of Euripides. M. Decharme cannot justify his plots; no one can, indeed, do that, unless he uses some other than the conventional interpretation of them.

The rest of the book falls into two parts, one of which deals with the author's opinions and one with his technique. In extracting the opinions of a dramatist from those which he puts into the mouths of his characters, the critic is always liable to err. What are Shakespeare's opinions? We have to compare and contrast, to draw inferences from the character of the speaker, and all this is very slippery indeed. M. Decharme is judicious in his attempt. He would hardly have expected to convince every one, but at least he avoids the charge of rashness. The topics which are dealt with in this section are the poet's views of religion, philosophy, society (including the position and character of women), and politics.

When we turn to his art as a dramatist, we see discussions of his choice of subject, the action of the plays, and the chorus. Of the dramatic situations we have already spoken; the plots are analysed on p. 224 and following, and their weaknesses are pointed out. It cannot be denied that Euripides shows less sense of form than Sophocles; nor (*pace* M. Decharme) that he lacked a sense of humour. The "comic

[2] "Euripides and the Spirit of his Dramas." By Paul Decharme. Translated by James Loeb. xxii+352 pp. (Macmillan.) 12s. 6d. net.

elements" in Euripides remind us of snakes in Iceland, unless we include the unintentionally comic. M. Decharme is aware of the poet's clumsiness in the prologue and the epilogue, but does not suggest a possible reason for it. Finally, he is more ready than some critics to see relevancy in the choral odes.

On the whole, this is a thoughtful and appreciative book, which may profitably be read by the young student who has some first-hand knowledge of the dramas; and it is written in a bright and interesting style.

EDUCATIONAL METHODS.[1]

OF the fifteen chapters of this new manual of the principles and methods of teaching, nine have been written by Prof. Welton, professor of education in the University of Leeds, and the remaining six by specialists in the departments of music, geography, mathematics, natural history, needlework, and form or handicraft. But though the pens are different, the spirit and doctrine are one, and the authors have succeeded in presenting us with a clear, logical, succinct, and inspiring treatise on this subject. This modern departure from single authorship shows at once how complex the theory and practice of education have become. Formerly nearly all the treatises on school work came from one mind; but this stage has passed, and we have now advanced to the period of professors and specialists.

The ideal Prof. Welton has set before him is to present to the student a consistent and co-ordinated body of doctrine derived from the theory, which underlies all true practice of an art. The student is asked to assimilate the principles laid down, and to make them part of that living thought which finds expression in his daily work in the class-room. In other words, he deals with the canons of the art of teaching, and trusts that the application will follow. This is a wise departure, and one we most heartily commend. Formerly—indeed, we are somewhat ashamed to admit, the practice continues—the manuals on teaching were compiled after the manner of the cookery book, in which one had only to follow the recipe, and lo! the product might have been the effort of a *cordon bleu*. But just as material things under the same name vary and fail us, so do the minds of children, and the author is quite justified in clearly stating that the true and effective way to train the practical teacher is to imbue him with broad and fruitful principles, which he himself must bring to bear on the living problems, which every day in school sets him to solve.

To be of value, however, these principles must be practical, and, excepting the clergy, we do not think that any body of professional men suffers more than teachers from advisers in the air. This book is essentially practical, and, wh is more than practical, much of it is really pc sible; that is, it suggests departures which it quite likely a teacher will be willing to make, he really desires to turn himself round and e brace the modern spirit. In each chapter su cient details are given to guide the worker, a in nearly every chapter opinions of great think are most appositely quoted as a stimulus and centive to broader thought. John Morle "Essay on Popular Culture," Grote's early cha ters in his "History of Greece," Seeley's "E pansion of England," and Frederic Harriso "Meaning of History" are a few of the ma instances given.

Two features of this work are specially co mended: the outline courses of study, especia that on the teaching of English, chapter vii and a list at the end of each chapter, of boo recommended for the use of teachers, with t prices attached. No fewer than 143 works a named, and the whole forms one of the mc copious and valuable catalogues we have late seen.

THE WORKS OF SHAKESPEARE.[2]

IT is not too much to say that this book wi become indispensable to all engaged in th study or teaching of Shakespeare. Its co pleteness, its range, its suggestiveness, and i fullness of matter are marvellous; for it embodi all recent research of any note or value. M Luce starts by treating the matter of his volum somewhat baldly. He says it is a "matter c arithmetic; the pleasure we find in a work of a will be in proportion to our knowledge." Tha is a proposition from which many genuine critic would shrink; but as the author proceeds wit his task his book grows luminous and valuable in a singular degree.

As a handbook it completely justifies its title but it suggests so many lines of inquiry that i is valuable beyond most volumes of its kind, an its style is admirable. The necessary historica facts are clearly set forth, and each play is deal with first in this aspect; then follow the critica remarks, and these are splendid. They have, i many cases, been stated by other commentators but Mr. Morton Luce's own share in them i large, and the whole is beautifully expressec His paragraphs sometimes are marvels of logi and literary beauty.

Concerning Shakespeare's apprenticeship som remarks on p. 71 are worth pondering; so ar those on p. 235, on his technical defects; and w are wholly at one with Mr. Luce in his estimat of Shakespeare's method of composition. Wha he says of Lady Macbeth (p. 319) is pen trating and important, and if his estimate of Fa staff (p. 398) seems a little too high, he suppor it ably. A valuable point is made where he not

1 *"Principles and Methods in Teaching."* By Prof. James Welton. viii+554 pp. (Clive) 4s. 6d.

2 "A Handbook to the Works of William Shakespeare." By Mort Luce. viii+463 pp. (Bell.) 6s.

hakespeare's love of or interest in music
d after 1600 A.D. (p. 395), though we do
llow his opinion of modern opera (p. 393),
is a matter we cannot here discuss. His
s of Shakespeare's relation to the canons
stotle (pp. 416 *et seq.*) is worthy of deep
on.

gether, this volume is a notable contribu-
Shakespearean scholarship by reason of
arness of its method, the vigour and in-
ence of its criticism, the unusual fullness of
rmation, the excellence of its style, and
le view and deep insight which it exhibits.
ny points the author combines his criticism
kespeare with his earlier volume on Tenny-
o such an extent, indeed, that it seems
ary, to a true appreciation, that it should
nded on a study of both volumes. But our
tion for this present work is great, and we
y commend it.

MOST NOTABLE SCHOOL BOOKS OF 1906.

cordance with our usual custom, we give below
ts of notable books published during 1906 in the
bjects of the secondary-school curriculum. In
g the lists we have secured the assistance of
in touch with the needs of secondary schools of
rade. Attention has not been confined to books
in these columns, and teachers who examine the
last year included in the following lists may rest
that they have become acquainted with the scope
ents of many of the best recent school books.
es where the title of a book is not a sufficient
n of its character a few explanatory notes have
led.

Modern Languages.

oire de la Littérature française classique, 1518–
By F. Brunetière. Tome I. De Marot à
ne. Deuxième Partie: La Pléiade. (Paris:
e.) 2.50 francs.
cellent example of the skill and sympathy of the
nch critic who has just passed away.
ures françaises: Géographie et Histoire." By
Poole and M. Becker. (Blackie.) 2s. 6d.
ch Historical Reader." By H. N. Adair. (Bell.)

duated French Unseens." By Victor Oger.
) Parts I. to IV., 8d. each.
velle Grammaire française." By J. G. Anderson.
n.) 2s.
'ublic School French Primer." By O. Siepmann
Pellissier. (Macmillan.) 3s. 6d.
dbuch zur Geschichte der deutschen Literatur."
f Bartels. (Leipzig: Avenarius.) 5s.
and interesting.
First German Reader." By D. L. Savory.
) 1s. 6d.
'irst German Course for Science Students." By
l. G. Fiedler and F. E. Sandbach. (Moring.)

"Cassell's New German Dictionary." Edited by Karl Breul. 7s. 6d. and 10s. 6d. net.

Quite the best dictionary at a moderate price.

Rippmann's "Picture Vocabulary." French: First Series. (Dent.) 1s. German: First Series. (Dent.) 1s.

"Dent's First Spanish Book." By F. R. Robert. 2s. net.

The only introduction to Spanish on reform lines; a very interesting contribution to method.

Classics.

For the Use of Teachers.

Amongst helps to the understanding of classical antiquity should be mentioned the following:

"The Hibet Papyri." Part I. Edited, with Translations and Notes, by Drs. Grenfell and Hunt. (Egypt Exploration Fund.) 45s.

This admirable book, besides new classical fragments and portions of classical texts, contains a mass of material which throws light on ancient life, and is a most valuable help to the student.

"An Introduction to Greek Epigraphy." Part II. "The Inscriptions of Attica." By C. S. Roberts and E. A. Gardner. (Cambridge University Press.) 21s.

A learned and scholarly book, giving the chief Attic inscriptions with full commentary.

"A History of Ancient Pottery." By H. B. Walters, based on the work of Samuel Brick. Two vols. With 300 illustrations, including eight coloured plates. (Murray.) 63s. net.

"Coin Types, their Origin and Development." By Dr. George Macdonald. (MacLehose.) 10s. net.

A brilliant and original work, advancing by one stage this thorny subject.

"A Grammar of New Testament Greek." I. Prolegomena. By J. H. Moulton. (T. and T. Clark.) 10s. 6d.

A brilliant contribution to historical Greek grammar.

"Historical Greek Coins." By G. F. Hill. With thirteen plates. (Constable.) 10s. 6d. net.

Contains the chief coins which illustrate Greek history, and a general account of coins.

Scholars' Editions.

"The Birds of Aristophanes." The Text revised, with a Translation in Corresponding Metres, Introduction, and Commentary. By B. B. Rogers. (Bell.) 10s. 6d.

"Demosthenes against Meidias." Edited by W. W. Goodwin. (Cambridge University Press.) 9s.

School books of the usual unintelligent type have been plentiful as usual, but the year has been singularly barren in those which differ from that type. We have only to mention three which embody the result of recent experiments in the reform of classical teaching. Experience will, we hope, suggest further improvements upon these first attempts.

"The Perse First Latin Book." By W. H. S. Jones. (Cambridge: Macmillan and Bowes.) 2s.

In this Mr. Jones carries out the principles laid down in his book on "The Teaching of Latin" (Blackie). The book is meant for boys of eleven to twelve, and it contains everything necessary for them to learn up to the reading of the first author.

"A First Greek Course." By Dr. W. H. D. Rouse. (Blackie.) 2s. 6d.

Contains a similar course for the first two terms of Greek (age fourteen to fifteen), and covering the whole essentials of accidence and syntax, with the necessary exercises and marking.

"The Greek War of Independence (1821–1827)." Being a Greek text for beginners, with Notes, Exercises, Vocabularies, and Maps. By C. D. Chambers. (Swan Sonnenschein.) 3s.

This book also contains the necessary grammar for the first course, based on a continuous narrative which is graduated in difficulty from page to page. The book is well done, in spite of some defects in the Greek style, which may be mended in a second edition, and a certain lack of clearness in the arrangement of the non-textual part.

School Editions.

"Selections from the Septuagint," according to the text of Swete. By F. C. Conybeare and St. George Stock. (Ginn.) 6s.

Contains an admirable summary of Hellenistic grammar.

"Selections from Lucian." By F. G. Atkinson. (Ginn.) 6s.

With good introductions.

We must also mention the excellent texts of "Demosthenes," Vol. I., by S. H. Butcher, and the "Annals of Tacitus," by C. D. Fisher (Clarendon Press), 4s. and 4s. 6d.

English Language, Grammar, and Composition.

"A Class Book of English Grammar." By W. E. C. Clarke and A. C. Muller. (Longmans.) 2s. 6d.

Adapted to give a good grounding. Well equipped with examination questions.

"Progressive Course in English Grammar and Composition." Part I., for junior classes, 6d.; Part II., for senior classes, 9d. (Oliver and Boyd.)

Valuable little books.

"Sentence Analysis." By one of the authors of "The King's English." (Clarendon Press.) 1s. 6d.

Specially written for lower forms of public schools.

"Exercises for Parsing in Colour." By E. Hastings. (Edward Arnold.) 1s. 6d.

Well suited for young pupils.

"The Sounds of Spoken English." By Prof. Walter Rippmann. (Dent.) 1s. 6d.

An excellent manual that was much required.

"The King's English." By H. W. F. and F. G. F. (Clarendon Press.) 6s.

For the teacher or the library. Exceedingly useful. Well planned and well executed.

"Blackie's Standard Dictionary." (Blackie.) 2s.

Concise, comprehensive, and thoroughly trustworthy. Has very useful appendices.

"A Chapter on Essay Writing." By A. S. West. (Cambridge University Press.) 6d.

The excellent chapter from the latest edition of Mr. West's Grammar.

"Essays in the Making." By Eustace Miles. (Rivingtons.) 3s. 6d.

Likely to be very useful.

"Précis and Précis Writing." By A. W. Ready. With key. (Bell.) 4s. 6d.

A comprehensive manual.

"The Essentials of Composition and Rhetoric." By A. H. Espenshade. (Heath.) 3s. 6d.

Excellent matter, practically and lucidly arranged.

"Historical Study of the Mother Tongue." By Prof. H. C. Wyld. (John Murray.) 7s. 6d.

Very important for teachers. A thorough and learned *work, based on the latest results of research.*

History.

For the Use of Teachers.

"The History of England from the Earliest Tim the Norman Conquest." By T. Hodgkin. (Longn 7s. 6d. net.

The first volume of Longmans' standard "Po History of England."

"England under the Normans and Angevins." H. W. C. Davis. "England under the Tudors." A. D. Innes. "England under the Stuarts." By (Trevelyan. (Methuen.) 10s. 6d. net each.

Three of the seven volumes of which this "Histc England" is to be composed.

"English Historians." By A. J. Grant. (Bla 2s. 6d.

An account of English-writing historians of Eng with illustrative extracts.

"Syllabus of British History." Parts VI.–IX C. H. K. Marten. (Spottiswoode.) 6s. net.

Suggestive headings for *viva voce* work.

"Syllabus of Continental European History." By (Richardson. (Ginn.) 3s. 6d.

Headings for lectures.

"Lectures on Modern History." By Lord Acton. (millan.) 10s. net.

Cambridge professorial lectures by the master of m history.

For Class Use.

I. EUROPEAN HISTORY.

"Readings in European History." Vol. II. By J Robinson. (Ginn.) 7s.

Extracts from sources, with a running commentary.

"Main Landmarks of European History." By F Dixon. (Clive.) 2s. "Heroes of European History." L. Creighton. (Longmans.) 1s. 6d.

Two little introductory books.

"Gateways to History." (Edward Arnold.) 10d.–1

Seven booklets, introductory to history. Books V. VI. tell of European history.

II. ENGLISH HISTORY.

"Asser's Life of King Alfred." By A. S. Cook. ((2s. 6d. "Illustrative History." Stuart Period J. W. B. Adams; Mediæval Period, by A. Kimpste G. Home. (Horace Marshall.) 2s. 6d. each.

"Source" books.

"An Advanced History of Great Britain." By ' Tout. (Longmans.) 5s.

The best text-book for elder scholars.

"War and Reform, 1789–1837." By A. H (Rivingtons.) 3s.

A good "period" manual. One of a series.

"Rights and Duties of Citizenship." By W. D. (Clive.) 1s. 6d.

For elder scholars.

"Our English Towns and Villages." By H. F Hall. (Blackie.) 1s. 6d.

For younger pupils.

III. LOCAL HISTORY.

"A School History of Somerset." By W. Ray "A School History of Warwickshire." By B. Windle. (Methuen.) 1s. 6d. each.

"The Story of Exeter." By A. M. Shorto. (E Commin.) 1s. "Lancashire." (Pitman.) 3d. and

Both, in proportion to size, useful and interesting.

Geography.

ıpiling the following list, space has compelled us several works which in ordinary years would have uded.

General.

·essive Course of Comparative Geography." By Estrange. (Philip.) 6*s.*

ıined geography and atlas, designed for a complete ırse.

Preliminary Geography." Vol. I. of the "Oxford ies." By A. J. Herbertson. (Clarendon Press.)

eatures: causes and consequences *plus* descriptive nd numerous illustrative maps.

raphical Gleanings." By Rev. F. R. Burrows. 1*s.* 6*d.*

tive hints to teachers.

tical Teaching of Geography in Schools and " By A. Morgan. Fourth edition. (Philip.) 6*d.*

Special.

British Isles." Vol. II. of a "Scientific Geo- By E. W. Heaton. (Ralph, Holland.) 1*s.* 6*d.*

," "Yorkshire." Readers of the "English " series. (Blackie.) 8*d.* each.

lbook of the British Colonial Empire." By W. H. nd A. J. Harding. (Waterlow.) 2*s.* 6*d.*

ɔn the "Colonial Office List": administrative and sections more trustworthy than the geography.

terranean and Eastern Colonies." Vol. I. of "Historical Geography of the British Colonies." ɛdition. Revised by R. E. Stubbs. (Clarendon 5*s.*

Dominion of Man." By E. Protheroe. (Methuen.)

whole a good epitome of commercial geography.

Atlases.

Model Atlas." (Philip.) 6*d.*

te relief and political maps.

ly Atlas of Modern Geography." Second edition. .) 10*s.* 6*d.*

as a reference, or to accompany newspaper read- nmed full of names.

of the World's Commerce." By J. G. new. (Newnes.) Twenty-two fortnightly parts at

ellent publication, containing also a gazetteer of ial commodities by W. A. Taylor, and an intro- o economic geography by G. G. Chisholm.

Harmsworth Atlas and Gazetteer." (Philip.) t fortnightly parts at 7*d.* each.

ɛnced publication on October 30th, 1906, and d as the "most complete, most accurate and up- atlas of the day.

Wall Maps.

ɜh Isles." One of the "Imperial Series." A. K. Johnston.) 21*s.*

" "Palestine." Stanford's "New Orographical under direction of H. J. Mackinder. (Stanford.) on rollers, 21*s.* each.

te and pleasing; well worth getting.

Mathematics.

"A Heuristic Arithmetic." By Clifford Granville and C. E. Rice. ix+273 pp. (Horace Marshall.) 2*s.* 6*d.*

Divided into "Method," 130 pp., for teachers; "Examples," 100 pp., for pupils; and answers. An excellent book for very young beginners.

"The Winchester Arithmetic." By C. Godfrey and G. M. Bell. ix+199 pp. (Cambridge University Press.) 3*s.*

A collection of examples of great freshness. A straightforward treatment is given; and the tricky questions which most books inherit from generations of examination papers are omitted. Logarithms are included. A teachers' edition (6*s.*) contains answers and notes on method, interleaved with the examples.

"Examples in Arithmetic." By C. O. Tuckey. xii+241+xl pp. (Bell.) 3*s.*

Tricky "examination" examples are placed in a section by themselves. Logarithms are included; also examples on numerical trigonometry and on the applications of proportion to physics.

"A New Shilling Arithmetic." By C. Pendlebury and F. E. Robinson. xii+175+xxxiv pp. (Bell.) Without answers, 1*s.*; with answers, 1*s.* 4*d.*

Seems much the best of several new Arithmetics at this price.

"A First Course of Algebra." By A. E. Layng. viii+175+xxi pp. (Blackie.) 2*s.* 6*d.*

Reaches quadratic equations. A good course, except that simple equations seem unduly postponed.

"A Second Geometry Brook." By J. G. Hamilton and F. Kettle. vi+292+xii pp. (Edward Arnold.) 3*s.* 6*d.*

The work is skilfully arranged so as to lead through guesses and experiments to the discovery of geometrical truths. An introduction to trigonometry is included.

"Geometry." By S. O. Andrew. xi+218 pp. (Murray.) 2*s.*

This book (entirely recast in this edition) contains plane and solid geometry and trigonometry to the solution of oblique triangles. It begins with a good course of experimental work; then chapter viii. is devoted to the deductive method of proof, which is used thenceforward.

"A Manual of Geometry." By W. D. Eggar. xxiii+325 pp. (Macmillan.) 3*s.* 6*d.*

Contains good experimental work. In chapter x. formal proofs are begun. These are indicated only, and should be written in full by the student in a note-book. A chapter on mensuration of solids is included.

"Trigonometry for Beginners." By Rev. J. B. Lock and J. M. Child. viii+195 pp. (Macmillan.) 2*s.* 6*d.*

An attempt to treat trigonometry as a practical subject. Five-figure tables are included, and stress is laid on determining the error possible in interpolation and in the calculations for solving triangles. Surveying instruments are explained.

"A New Trigonometry." By R. F. D'Arcy. viii+84 pp. (Methuen.) 2*s.* 6*d.*

An easy, well-arranged course of trigonometry to solution of triangles, excluding the addition formulæ.

"Trigonometry for Beginners." By J. W. Mercer. xii+351 pp. (Cambridge University Press.) 4*s.*

This excellent book, which includes the addition formulæ and their applications, has many novel features. The tangent is first introduced, and the sine and cosine later. This makes the early chapters very easy. In solving triangles, the use of the haversine formula is included; also the traverse table is explained.

"Algebraic Geometry: a New Treatise on Analytical Conic Sections." By W. M. Baker. ii+325+xxiii pp. (Bell.) 6s.

Except for one chapter, on the general equation, this deals with conics referred to their axes. Two striking features are sections on locus problems, and sections on the properties of conics in which geometry and algebra are both used according to convenience. An excellent book for those who are not specialists in mathematics.

"Clive's Mathematical Tables." ii+49 pp. (University Tutorial Press.) 1s. 6d.

Contains two-page tables of logarithms, &c., to five figures, with corrections to enable accuracy to be obtained when the numbers in the difference columns are large. Should be useful in doing away with uncertainty as to the accuracy to be expected.

"Elementary Problem Papers." By C. V. Durell. vii+120 pp. (Edward Arnold.) 1s. 6d.

Should be useful for those beginning to specialise in mathematics.

Physics and Chemistry.

For Class Use.

PHYSICS.

"Elementary Treatise on Physics." Translated from Ganot's "Éléments de Physique." Seventeenth edition. Edited by Prof. A. W. Reinold. (Longmans.) 15s.

The revision of this popular text-book has been thorough, and the result is satisfactory in every respect.

"The Properties of Matter." By C. J. L. Wagstaff. (Clive.) 3s. 6d.

"Practical Physics." By W. R. Bower and J. Satterly. (Clive.) 4s. 6d.

CHEMISTRY.

"Conversations on Chemistry." Part II. By W. Ostwald. Translated by S. K. Turnbull. (Chapman and Hall.) 8s. 6d. net.

"Elements of Quantitative Analysis." By Dr. G. H. Bailey. (Macmillan.) 4s. 6d.

"Practical Exercises in Chemistry." By G. C. Donington. (Macmillan.) 2s. 6d.

Very suitable for use in secondary schools.

"Joseph Priestley." By T. E. Thorpe, F.R.S. (Dent.) 2s. 6d. net.

For the Use of Teachers.

"Cours de Physique." By J. Jamin. Troisième Supplément (Radiations, Electricity, Ionisation). E. Bouty. (Gauthier-Villars.) 8 francs.

"Lehrbuch der Physik und Meteorologie." Müller-Pouillet. Tenth edition. First volume, in two parts (Mechanics and Acoustics). (Vieweg und Sohn.) 7 marks and 3.50 marks.

"Lehrbuch der Physik." By O. D. Chwolson. Vol. III. (Vieweg und Sohn.) 16 marks.

This volume includes heat and thermodynamics. The complete treatise bids fair to prove itself the leading text-book of physics.

"Radio-activity." By E. Rutherford. Second edition. (Cambridge University Press.) 12s. 6d. net.

This volume has no rival as an authoritative exposition of what is known of the properties of radio-active bodies.

"Conduction of Electricity through Gases." By Prof. J. J. Thomson. Second edition. (Cambridge University Press.) 16s.

The original volume has been completely revised, and extensive additions have been made. A standard work by the pioneer investigator in the field of the corpuscular *theory of electricity.*

"Magnetische Kraftfelder." By H. Ebert. Secon edition. (Leipzig: J. A. Barth.) 7 marks.

"The Theory of Experimental Electricity." By W. C. I Whetham. (Cambridge University Press.) 8s. net.

An elementary text-book—an admirable exposition of that the theorists have discovered so far.

"Thunder and Lightning." By Camille Flammaric Translated by W. Mostyn. (Chatto and Windus.) 6s. n

"Die optischen Instrumente." By Dr. M. von Rol (Teubner.)

This gives a simple account of the development a modern theory of optical instruments.

"The Life and Experiences of Sir H. E. Roscoe Written by Himself. (Macmillan.) 12s. net.

Natural History.

Botany.

"A First Course in Practical Botany." By G. F. Sc Elliott. (Blackie.) 3s. 6d.

Suitable for students at the public school and techni college stages.

"Plant Life: Studies in Garden and School." By H. Jones. (Methuen.) 3s. 6d.

A nature-study book adapted to the needs of prima and secondary schools.

"The School Garden: a Handbook of Practical Hor culture for Schools." By J. E. Hennesey. (Blackie.)

A most useful book for those desirous of turning t school garden to best account educationally.

"The Physiology of Plants." Vol. III. By W. Pfeff Translated by A. J. Ewart. (Clarendon Press.) 18s.

An advanced work dealing with metabolism and sourc of energy in plants.

"Handbook of Flower Pollination, based upon Müller's Work 'The Fertilisation of Flowers by Insects.' Vol. I. By P. Knuth. Translated by J. R. Ainswort Davis. (Clarendon Press.) 18s.

"School Gardening for Little Children." By Lu Latter. (Sonnenschein.) 2s. 6d.

"Alien Flora of Britain." By S. T. Dunn. (We Newman.) 5s.

Zoology.

"Insect Life." By J. H. Fabre. (Macmillan.) 2s. 6d

A cheap issue of perhaps the most delightful book ever written on insects.

"Life and Evolution." By F. W. Headley. (Dod worth.) 8s.

A non-technical account; the outcome of lectures public-school boys.

"Cambridge Natural History." Vol. I. Protoz Porifera, Cœlenterata, Ctenophora, and Echinoderma (Macmillan.) 18s.

"The Biology of the Frog." By S. J. Holmes. (M millan.) 6s. 6d.

An exhaustive compilation.

"Outlines of Zoology." By J. A. Thomson. Fou edition, revised and enlarged. (Pentland.) 15s.

Middlesex. 128 pp. (Blackie.) 8d.—This is one of "English Counties Series of Supplementary Readers," which we have already noticed others. It is, like fellows, well written, clearly printed, plentifully illustra with pictures and maps. Besides its thirty-eight chapt there is a synopsis. London is deliberately excluded, the rest of the county is described topographically a incidentally, historically. Our only complaint is th while we have references to the two kings of Brentfo their story is not told.

TION OF ENGLISH SECONDARY EDUCATION.[1]

rganisation and development of the education given ndary schools is the most important educational of the present day. It is the pivot of the whole , as it affects the efficiency, intelligence, and well- the nation. The scope and character of primary n are now pretty well settled. Much remains to in improving it; but the problems, so far as they tly educational, are uncontentious, and admit of nate solution. Further advance will be on well- ned lines. The experience of thirty-five years' has borne fruit. But as soon as we pass beyond ere of elementary education proper (or what may ently be called by the almost disused name of education), *i.e.*, beyond what is provided and com- y law for the whole child-population of the nation, nge into chaos. Higher education has grown up country almost of itself, without any continuous rm guidance from the State.

provision and aid of super-primary education is now tion of all local education authorities. But the ls of the problem are not yet authoritatively settled clearly stated. Great confusion of thought still hroughout the country, and through all the writing cussion about it principles are only slowly emerg- d have not been reduced to order. Local authori- e to proceed experimentally, and gain their wisdom rience. It is inevitable that there should be many many false starts, much waste labour, and mis- tion of machinery. The function of the central ty is to watch, encourage, warn, co-ordinate; also t for support, and to commend to localities, certain which are fundamental in any complete scheme of l provision; and to see that certain important things will be different in different places) are not lost f, and that the more important shall, so far as , take precedence of the less important.

the object of producing a greater clearness of t in regard to the main purpose to be kept in view ard has attempted, in the exercise of this function, a standard and supply a working definition of the ry school as distinct from other forms of super- y education. This is given in the preliminary para- of the regulations for secondary schools as a school h offers to each of its scholars a general education wider scope and higher grade than that of an tary school, given through a complete progressive of instruction continuing up to and beyond the age een."

further laid down in the regulations that a secondary as thus defined, must offer at the least a full ar course providing instruction in a group of sub- o selected as to ensure due breadth and solidity in ucation given. These subjects are defined as (i) the h language and literature, together with geography story; (ii) a language other than English; (iii) mathe- and science, both theoretical and practical; and awing. In the case of girls, practical housewifery be provided for in the course, and as regards both nd girls some provision must be made for manual and for physical exercises. The object of these rules certain further rules more closely defining these, is ure, even at the risk of some interference with free experiment, a certain amount of breadth and richness in the curriculum of secondary schools, and to provide against schools recognised under that name offering only an education which is stunted, illiberal, unpractical, or over-specialised. With the growth of educated public opinion it may be possible, and, whenever it becomes possible, it is highly desirable, to relax these requirements in schools of tested efficiency, and to leave them a larger freedom in devising and executing schemes of education of their own.

The results of the various inspections, and especially the full inspections of secondary schools throughout England that have recently been conducted by the Board, can now be brought together sufficiently to reveal certain general features of secondary-school work in England to which attention must be directed. The most conspicuous fact which emerges from a review of the reports on the inspection of 362 secondary schools in England conducted since December, 1904, is their demonstration of how much has yet to be done. There are many hopeful signs, there is real and widespread interest, but the shortcomings are too often little less than disastrous.

Perhaps the most serious and most widespread defect in the schools inspected by the Board in the last eighteen months is the bad teaching of English. There is scarcely a report in which complaint is not made of the English teaching in one direction or another. Either the teachers are not qualified to teach it, or there is too little time given to the subject; there is too little attention given to reading, and the recitation books are not well chosen; or they do not exist at all, for collections of extracts are *biblia abiblia*; or there is no instruction except in formal grammar; or, most frequent of all, there is no graduated course of study. The following extracts from reports of inspectors justify these serious strictures: "There is a tendency at present to treat the English books as a matter for scansion, analysis, &c., and as a quarry for miscellaneous allusions, rather than as a means of culture and a training in logical expression. Some of the books studied are chosen deliberately from the former point of view." "In the term when the school was inspected no literature whatever was being taught. The grammar lesson heard in Forms II. and I. was all but worthless. An unsuitable text-book was being dealt with mechanically; the boys, having no principles to guide them, made a series of bad guesses. It would be better for this class to drop grammar and be taught instead to read and understand a simple poem or two."

The evils that follow from this are only too frequently apparent. The children are careless and faulty in speech, their answers are mumbled or inaudible, and, as a further consequence, the standard of work in French and German is low.

It is only fair to say that, except in schools of the first rank, the language teaching in schools for girls is on the whole better than in those for boys of a corresponding type; especially is this true of French, and to some extent of English also.

The disappearance of Greek, and even Latin, from many of the schools under the Board's inspection makes English a more important branch of the curriculum than ever before. In many cases two foreign languages are begun simultaneously, an arrangement that must lead to confusion in the mind of the pupil. In one school the pupils in Form I. commenced Latin and French together. "Many of the scholars in this form are," says the inspector, "of such low general attainment, and, in particular, so ill-grounded in English, that the acquirement of the elements even of one foreign language constitutes a

[1] idged from the section dealing with secondary education in the of the Board of Education for the year 1905-6 (Cd. 3270, f.).

heavy tax upon their powers. Having regard to all the circumstances of the school, it is, indeed, probable that nothing is gained by the inclusion of a second foreign language in the school curriculum. If the time now assigned to Latin were in part devoted to the strengthening of the English work, and in part drawn upon to make a daily French lesson possible in each form, the educational gain would be very real and the corresponding loss slight."

Another general statement that can be made about these schools is that in almost all of them, whatever their type, the staff of assistants is underpaid and often overworked. As a result, teachers with inadequate qualifications are entrusted with the instruction of children who, when they are grown men and women, should do the brain work of the nation. Even where the teacher is properly equipped he is depressed and disheartened by the conditions under which he is obliged to work, and a feeling of restlessness among the staff is engendered which results in too frequent changes; the prevalence of short-service teachers impairs the continuity of tradition.

In the smaller schools the headmaster or headmistress is frequently too much occupied to be able sufficiently to supervise the work of the assistant staff; yet in such schools, owing to the small salaries and to the poorer quality of the teaching, the need of supervision is greatest.

The introduction (into the secondary school) of pupil teachers and probationers (*i.e.*, intending pupil teachers) in numbers exceeding the number of girls previously in the school has, of course, caused difficulties of organisation. These have been overcome for the moment; but further changes will be necessary as the progress of time renders possible the more complete amalgamation of the school and the pupil-teacher centre. But this is not all: "The newcomers have brought new problems and responsibilities to the assistant staff, and the mere increase in numbers has, of course, necessitated bringing in new mistresses. The result is that the staff needs an unusual amount of supervision and guidance if the important work undertaken is to be properly carried out."

Further, in such schools none of the staff have an appreciable proportion of spare time during school hours, so that scanty opportunity is given for original study, for reading new authors and subjects, and for working up old. In such circumstances neither improvement in teaching methods nor increased freshness in dealing with new subject-matter can fairly be looked for.

Finally, it is only in exceptional cases that there is at present any effective test, graduated according to age, imposed upon scholars at entrance. Until, however, such a test has come into general use, classification cannot be satisfactory.

From the facts respecting the various types of public secondary schools, and by the testimony of all the most competent judges, it is clear that *an improved standard of teaching power* in secondary schools is at the root of all improvements and developments. Whether the deficiency be in number, or in training, or in academic qualification and teaching experience, the whole teaching staff in very few cases reaches the standard necessary for full efficiency.

The reports of our inspectors prove that much—the reformer in a hurry may even say all—remains to be done, not only as regards *personnel* and the methods the teachers adopt, but as regards the material and mental conditions (buildings, equipment, management, leisure, and salaries) under which the work is done. But these things cannot be put right in a couple of years, nor by a stroke of the pen. *The improvement, even the amount* of financial help from the locality or the State, must come gradually if desired effects are to follow and to be permanent.

It is, however, idle to expect full efficiency from teaching staff which is inadequately paid; and in majority of schools a substantial increase of the sal fund, with provision for both increment for length service and for superannuation, must be regarded a matter, not only in itself urgent, but a necessary condi for getting the full value out of other improvements.

In view of these considerations, as well as of the creasing importance now universally recognised as attı ing to a systematic provision of super-primary educat a substantial increase in the amount of State aid m available for secondary schools has been determined uj and is provided for in the Estimates of this year. portant matters of principle, however, inevitably arise regards the allocation of the increased grants and eligibility or ineligibility of various types of second schools for State aid, which require careful investigati and may involve discussion in Parliament. For this rea the modified or supplementary regulations on which new grants will depend will not be issued until a la date. It will be observed that these questions do relate primarily to the kind of education given, but to conditions under which it shall be given, as rega management, finance, accessibility, and degree of pul control. But it is no less clear that these questions in vital relation to another question which is of a stric educational nature. This question, on the solution which the whole character of the system to be adopted depend, is how the type of super-primary education presented by the secondary school may be organically co nected with the national system of primary education op to the children of the whole nation, and maintained who by public funds, without lowering the standard of wo to be attained.

Secondary education differs from elementary educati in two ways, and the difference between them may expressed in two sets of terms according to the point view from which the matter is approached. The diffe ence is, from the one side, a difference of stage, from th other, a difference of kind. The secondary school, tha is to say, may be regarded either as taking over, at certain age and a certain stage of proficiency, the childre of the elementary school, and developing their education a larger manner to a higher point; or as providing f children an education, which either from the very b ginning or from a very early stage, is differently plann from that of the elementary school, and directed towa a different though kindred object. Both these types secondary school are well established, and, under existi social conditions, both are alike necessary. But the form is, and must tend more and more to be, the predomina type as regards the bulk of the nation; and it is in it th the problem of continuity is at once most difficult a most acute.

Education is one. Any dislocation in its course is the best but a necessary evil. It ought to be continuou progressive from the time when a child first passes beyc the home and goes to school up to the time when school l ceases, when the boy or girl ceases to be under edu tional tutelage, has been taught how to learn, and c thenceforth go on to learn for himself or herself. In ideal commonwealth, this process would be complete the whole youth of the nation. This is a high ideal, a how far removed it is from existing facts, or from a state of facts which can be contemplated as soon to possible, is at once obvious. But short of it there is

finality: and the higher the aim is fixed, the higher the attainment is likely to be.

The problem which has to be faced is how to unify education by liberalising the whole of it. A break of gauge is harmful and wasteful; but much may be done to ease it and alleviate its drawbacks. It is difficult to imagine that the social organisation can, at least for a long time to come, be so adjustable and elastic as to be able to do away with it altogether. A class education in compartments after the fashion of Plato's "Republic" is contrary to the essence of democracy. It is true that in the civic scheme of the "Republic" provision is made for transfusion of children from the ruling to the labouring class, and *vice versa*; and such in effect was the system of the Middle Ages in England. But a democracy is naturally jealous of a privileged class; and one of the dangers that have to be guarded against is that this jealousy may restrict the province or contract the scope of higher education. One of the points which demand the most careful and thoughtful treatment is how to provide State-aided secondary education in the degree to which, and at the points at which, it is really needed, and how to ensure free access to it for children of every class according as the individual is intellectually capable of receiving profit from it.

The age of twelve is that about which transference from the primary to the secondary school normally occurs; and the required course of secondary schools certified or aided by the State in England is fixed with reference to this fact. It is the age (with certain comparatively unimportant exceptions) at which statutory exemption from school attendance begins; and it is the age up to which the transference from one type of school to the other can be effected with comparatively little loss, though it is the experience of teachers that the loss even then is considerable, and that better results are obtained when the transference takes place earlier. But difficulties arise from various sources: from the lack of any clear delimitation between the provinces of the elementary and of the secondary school; from the natural ambitions and justifiable ideals of the best elementary-school teachers; from apathy or want of intelligence on the part of parents; from the feeling, still unfortunately prevalent, which regards the secondary school as a mere "finishing" place for a year or two; and also from the past history of the secondary schools which have grown up either, on the one hand, as schools for children of a distinct social class, or, on the other, as extensions of the elementary school that did not rise beyond elementary methods, standards, and traditions.

The possibility of nationalising secondary schools is intimately connected with the question of fees. Elementary education is now (with but few exceptions) free. In secondary schools, those maintained by local authorities, as well as others, a fee of a substantial amount is normally charged. Out of the 685 schools recognised for the session 1905–6, only four were wholly free, and only twenty-eight charged a fee under £3 a year. The fee was £3 in forty-six schools, and in the remainder exceeded that figure. The London County Council has determined on fees of £6 6s. and £10 respectively in the two grades of secondary schools which it is in course of providing. In endowed schools the limits of fee are fixed by scheme in each case. From £6 to £8 or £10 may perhaps be regarded as normal. But in some cases the fee is considerably higher, being more than £13 in the case of seventy-seven schools.

It is important that parents and others should recognise that good education cannot be bought cheaply, and that two things must always be borne in mind if a secon school is to serve the purpose which they have in v the children sent there must be fit to profit by the e tion given, and the secondary school must correspond its title, and must give an education higher in scope character than that of an elementary school. If these conditions are not satisfied the money of parents, payers, and taxpayers alike will be largely wasted o maintenance of a school which is a secondary school in name.

HISTORY AND CURRENT EVENTS.

"'THE King can do no wrong.' This maxim . . . n . . . that by no proceeding known to the law can King be made personally responsible for any act don him; if (to give an absurd example) the Queen (Vict were herself to shoot the Premier through the head court in England could take cognisance of the act."— Dicey, "Law of the Constitution," p. 24 (ed. 1 According to the Trade Disputes Bill (which will pro soon become an Act), "if a union should own a m car, and the chauffeur, a servant of the union, shou the course of his employment, through his gross negli drive over an innocent wayfarer who has no conne with any trade dispute whatever, and cripple him for the sufferer will not be able to recover a penny of dam from the union, even if it possesses £50,000."— Dicey, *The Times*, November, 1906. Who is King?

BUCKHURST wrote to Queen Elizabeth: "There was peace well made without a mighty war preceding, always the sword in hand is the best pen to write conditions of peace." Lord Roberts said last Octo "The surest road to universal peace is the ado of universal training (in arms)." About the same President Roosevelt said: "The best way to secure is to learn to shoot straight"; and in his recent "mes to Congress" he said: "The chance for the settleme disputes peacefully by arbitration now depends m upon the possession by the nations that mean to do of sufficient armed strength to make their purpose tive." We hear from France that "anti-militarism not yet assumed sufficient proportions to be regarded national peril; but it is generally felt that if allowe develop with impunity and to proclaim itself in broad light, it might before long constitute a very serious da indeed." The Socialists of Germany were recently cussing the subject of "formally instituting a special paganda against militarism," but while favourable "vigorous local agitation" they could not "saddle central organisation with a responsibility which m prove fatal to its very existence." Argentina and have appealed to the Christ (see THE SCHOOL Wo October, 1906). What would He say to the above s ments?

THE Emperor Napoleon devised various means securing his autocratic power over the people "whom loved so well." Among other means he planned assemb the upper of which was to discuss Bills or proposals the amendment of law; the lower was merely to vo yes or no on them. It will help British folk to un stand the working of the Napoleonic constitution if study the actual working of our "Imperial" Parlia at the present day. It consists of two Houses of al equal numbers. But the House of Lords rarely meet anything like full strength, and only a few of its mem are anxious to take part in debate. The consequenc that there has never been any need for rules to

discussion, and speech is there free. The House of Commons, on the other hand, contains many who wish to speak, sometimes even for speaking's sake, and it has been thought necessary to introduce a drastic closure system. It is coming rapidly to be a House for registering votes. Only in committee is there a chance of changing the form of a Bill as drafted by the officials.

WE referred last month to the federation known as the British Empire, and to the difficulties that arise in the relations between the various central and local authorities. A further illustration has arisen since then in the question of admitting natives of India, who are British subjects, into the colonies of South Africa. Meanwhile the United States of America are affording further instances of the difficulties of a federation. Some of our readers will remember a few years ago that the Federal Government found a difficulty in attempting to satisfy the complaints of Italy that some of her citizens were lynched in New Orleans; and now the sovereign State of California (which, however, can by law have no international relations with Powers outside the United States) refuses to teach the children of Japanese within her borders. President Roosevelt finds it necessary to ask Congress to pass an Act "specifically providing" for the occasion, because "the statutes of the United States are entirely inadequate; they fail to give to the national Government sufficiently ample power to protect aliens in the rights secured to them under solemn treaties which are the law of the land." But California will probably not fight: there will not be another civil war.

ITEMS OF INTEREST.

GENERAL.

WE are not concerned in these columns with the incessant discussions on the forms of denominational instruction which may or may not be given in elementary schools. We are disposed to think that in the schools themselves no religious difficulty exists. It is, however, our duty to record that the Government Education Bill, which was introduced in the House of Commons on April 9th last, was, when received by the House of Lords for consideration, subjected to extensive amendment. These amendments were rejected as a whole in the lower House, and the Bill was sent back to the House of Lords for reconsideration, the opportunity being taken to indicate the "concessions" which the Government was willing to make. But the Leader of the Opposition in the House of Lords moved "that this House do insist on its amendments to the Education Bill," and the motion was adopted by a large majority. Thus another opportunity of putting an end to sectarian strife and of concentrating effort on education itself has been lost; and incidentally public interest in the schools has been directed into unprofitable channels.

THE House of Lords has reversed the decision of the Court of Appeal that education authorities are not obliged to make any contribution out of the rates toward the cost of giving denominational instruction in non-provided schools. The effect of this final judgment of what is known as the West Riding case is that a local education authority is obliged to pay for religious education in non-provided, or voluntary, schools.

SIR PHILIP MAGNUS, M.P., has accepted the presidency of the Section of Educational Science of the British Association for the meeting to be held at Leicester at the beginning of August.

MUSIC-MASTERS in secondary schools will be gratified note that their subject has been deemed worthy of "memorandum" from the Board of Education. Althou the document comprises no more than six pages of matt some of it irrelevant, and a good deal of it vague a amateurish, still the very fact of its existence has encouraging aspect to those engaged in the service of t educational Cinderella. The root difficulty is unfortunat outside the sphere of influence of the Board of Educatic Secondary schools reflect pretty faithfully the attitude mind of the public whose children they attempt to educa So long as the great mass of parents regard the winni of football matches and the compiling of big scores cricket as more important than the acquisition of an i telligent interest in art, so long will secondary scho continue to encourage the former and discourage the latt Notwithstanding the pious expression of opinion in t memorandum as to the hardship of taking the time f music out of playtime, the fact remains that the organis tion of a school makes it almost necessary that mu should be one of the pursuits of leisure; and so long the practical Philistinism of the British parent deman that the great bulk of schoolboys' so-called leisure shall occupied with a perpetual round of athletics, so long w schools continue to satisfy that demand. Those who rega a public school as an institution where an individual pu may acquire a liberal education are in a decreasi minority. There is reason to fear that no number memoranda from the Board of Education, able and we intentioned though they may be—and as, indeed, this o is—will do much to remedy the present state of affairs.

FOR many years geography has been an obligato subject of examination for candidates for admission to t Foreign Office and Diplomatic Services; but under n regulations recently drawn up the examination for th services is to be assimilated to that for the Home a Indian Civil Services conducted by the Civil Service Co mission, an examination in which geography is not o not obligatory, but has no place at all. The change w take effect in July next. This step has naturally excit a good deal of comment and no little surprise. A questi on the subject was addressed to the Foreign Secretary the House of Commons; and Sir Edward Grey's reply i defence of the change was that "although a knowled of geography is no doubt very useful, it is a subject wi which men of general education are generally acquainte and which is easily acquired after entry into the service Such a reply could not fail to draw forth protests fr those interested in geography. In a letter which appear in the *Times* of November 29th, Sir George Goldie, pre dent of the Royal Geographical Society, directed attenti to evidence of the lack of such knowledge among men general education, and others have done the same thin Nevertheless, Sir E. Grey, in a subsequent written answ to a question on the subject, maintained his ground, whi makes it somewhat remarkable that Mr. Courthope, t First Commissioner of the Civil Service Commission, h taken up a wholly different position, and in a letter the *Times* (December 6th) expressed the readiness of t Civil Service Commission to welcome geography as subject of examination, provided that its inclusion can made consistent with the principles on which the regu tions for the Home and Indian Civil Service examinatic are framed.

To Sir Edward Grey's contention that geography is subject easily acquired after entry into the service, M

Mackinder, in a letter which appeared in the *Times* of December 3rd, replies that this is a description of geography twenty years out of date, and cogently urges that "geography has its own modes of thought and its own points of view, which are not to be obtained in a hurry," a claim which has no need to be insisted on with those who have taken any interest in the development of geography in this country within the period to which Mr. Mackinder refers. Mr. Courthope, indeed, does not question this claim, and does not deny the disciplinary value of geography, but bases the exclusion of the subject from the higher examinations conducted by the Civil Service Commission solely on the ground that, in framing the existing scheme of examination, the Commissioners "kept in view the recommendation of Lord Macaulay's Committee that the candidates for the Indian Civil Service are to be chosen by open competition among those who have received the highest liberal education that the country provides," and that, so far, the universities have not given geography such a place as would justify its being included in a scheme so drawn up. The legitimacy of this latter contention has naturally been called in question; but those interested in geography can only hope that one result of the extraordinary step just taken will be to cause still greater efforts to secure adequate recognition for the subject in the universities.

THE interesting ceremony in connection with the formal opening of the additional wing to Cherwell Hall, Oxford, and of the new buildings of Milham Ford School, which is in close connection with the training college at Cherwell Hall, occurred too late to be referred to in our last issue. Mr. Birrell opened the buildings, and his speech was too good to pass unnoticed by us. Secondary education, he said, is not properly provided for in this country. The training of teachers is the principal pulse of the machine. The difference between a good teacher and a bad teacher is known to everybody who has been at school. The skilful teacher is the most valuable and economical asset that the country can lay its hands upon. People grumble about the large sums spent in the education of the children. It will doubtless yet be a larger sum; but the money will be thrown away unless at the same time there can be maintained a race of well-trained teachers. Teachers should try to keep in good health by careful attention to the details of life and to diet; and they ought to get a sufficient number of hours of good natural sleep. Every person engaged in the teaching profession should look forward, and not behind.

DR. SOPHIE BRYANT followed Mr. Birrell with an address on the higher education of women, and gave certain interesting autobiographical details. The *Layman* reports her to have said: "I sometimes say that I was born on the watershed, by which I mean that when I was a little girl I used to help my mother to mend the family stockings, and I was also my father's chosen companion in his intellectual pursuits, so that I have a great deal of sympathy both with the old way of looking at things and with the new way of looking at things." Speaking of the admission of girls in 1863 to the Local examinations of the University of Cambridge, Mrs. Bryant said: "It was not supposed to be proper that our names should be published in the lists, and so we appeared in the lists as numbers only; and I remember perfectly well what were my feelings when a result was published—my place was pretty high—and I was announced only as a certain number! I would so much rather have had my name in print." It is difficult fully to realise how young is the idea of the education of girls. Yet those who know the wo secondary schools for girls from inside know how pletely former conditions have altered. Instead of ing methods of education from men, many schoolmist are already leading the way to better and higher idea

NOT long after his visit to Oxford Mr. Birrell distr prizes to the students of Burnley Municipal Tec School, and in a speech referred to the cost of educ He said he could not promise any abatement of the e of education. The cost will increase; it will be before it is less. It is not the amount of mone spend on education that grieves the Minister of Educ most nations spend more, and we can afford to more; the thing that should cause grief is the amo money we waste. What we ought to turn our attent is that dreadful unguarded period between fourtee eighteen years of age. It is an absolute necessity to tain unbroken the stream of knowledge so that we c send into the world uncared for young children c ages of thirteen and fourteen. One of the chief dut the Board of Education is to see that public mor not wasted. People who do this class of work can be popular; but it does not matter whether the Bo Education is found fault with or whether it is curs has the support of all real lovers of education i country.

IT has been arranged by the Army Council that a s experimental course of commercial and business tr for officers shall be commenced at the London Sch Economics under Mr. H. J. Mackinder, the direct the school, on January 10th. The course will last f months, and will be divided into two terms. The of the training will be to qualify officers for appoint on the administrative staff of the Army and for the c of departmental services. With this object in vie course will include instruction in accounting and bu methods, commercial law (particularly in relation to tracts), transport (by land and sea), statistical me economic theory, and economic geography, all these jects being dealt with from the point of view o requirements of the Army.

MUCH valuable information concerning the progr secondary education in England and Wales can be ob from the recently published Blue-book (Cd. 3255), "S tics of Public Education in England and Wales, 1904- The number of secondary schools recognised by the of Education for 1905–6 is given as 689, as compared 575 during 1904–5. It is interesting to note the in ingly large number of schools falling into line with c regulations, and so reaping the advantages of State Though the detailed returns for the year 1905–6 fal side the scope of the statistics contained in the vo it is estimated by the Board of Education that the nu of pupils taking the approved courses of instructi recognised schools during that year was approxi 81,370, whereas the number in the preceding year wa 59,848.

THE Blue-book contains full statistics as to the years preceding the school year ending with the summer vacation. So far as 1904–5 is concerned, w that the 575 recognised schools educated 94,698 pupils of these 59,848 (including 21,282 girls), as already s were studying in accordance with approved fou courses. There were, in addition, in forms below taking an approved course, 32,108 pupils, including

girls; and in classes higher than those comprised in the approved course there were 2,742 pupils—a number which shows that the leaving age at schools recognised by the Board of Education is rarely above sixteen years. Grants were not paid on all the pupils studying in accordance with the approved courses. For various reasons there was a leakage of just over 8,000, and 51,779 pupils secured a grant of £211,254.

WE have more than once referred to the arrangements made some time ago by the Board of Education with the French and Prussian Ministries which enabled English teachers of modern languages to be placed in foreign schools, and provided for the appointment of French and German teachers in English schools for periods of one year. The recently published report of the Board of Education (see p. 25) states that the experiment is undoubtedly a successful one. During 1905–6 thirty-one assistants were placed in France—fifteen men and sixteen women; in Germany nine men were appointed; and in this country nineteen French assistants—eight men and eleven women—and two Germans were placed in our secondary schools. The committee appointed by the Board of Education and the French Ministry of Public Instruction also selected thirty-eight young women, many of them previously educated in English secondary schools or universities, to posts as *répétitrices* in French training colleges. Until the establishment of the assistant scheme these posts were much sought after by young Englishwomen desiring to qualify themselves to teach French; but the course in an *école normale* is less suited to their purpose than a year's experience in a secondary school, and the standard of attainment in applicants for posts as *répétitrices* now shows some falling off. The change in the regulations affecting a third year of study abroad for students in elementary training colleges in England will also affect the character of the supply for these colleges in the near future, and it is possible that the whole question of the *répétitrices* may need reconsideration.

THE Canadian Government Emigration Department in London has always undertaken lecture work throughout the country, as well as distributed lantern-slides to those wishing to deliver lectures on Canada. Mr. J. Bruce Walker, the newly appointed assistant superintendent of emigration, has arranged for an official to be attached to the staff for the purpose of delivering lectures on Canada in schools and before societies. Dates are now being booked for lectures during the next few months, and any headmaster or headmistress who desires to secure a lecture should make early application to Mr. Walker at 11 and 12, Charing Cross, London, S.W.

THE London County Council has arranged to hold another conference for teachers in elementary and secondary schools and technical institutes. In consequence of the number of subjects suggested for discussion, the conference will be held on January 3rd, 4th, and 5th, 1907. There will be two meetings on each day from 11 a.m. to 1 p.m., and 2 p.m. to 4 p.m. The meetings will be held at the Medical Examination Hall, Victoria Embankment, W.C. *First Meeting.*—"The Teaching of Modern Languages." Addresses will be delivered by Mr. L. C. von Glehn on "The Direct Method of Teaching Modern Languages," and by Mr. D. L. Savory on "The Application of Phonetics to Modern Language Teaching." *Second Meeting.*—"The Teaching of Shakespeare in the Schools." Addresses by Prof. I. Gollancz on "Shakespeare in the Schools," and by Mr. C. T. Hunt on "The Teaching of Shakespeare in Elementary Schools. *Third Meeting.*—"Organised Games for Girls." Addresses by Miss M. Lawrence on "Organised Games for Girls," and by Mrs. Kimmins on "Suggestions for Teachers of Organised Games." *Fourth Meeting.*—"Organised Games for Boys." Addresses by Mr. W. Corsie on "Physical Culture in an Elementary School," and by Mr. F. Elston on "Organised Games for Boys." *Fifth Meeting.*—"The Artistic Training of the Craftsman." Addresses on "Bookbinding," by Mr. Douglas Cockerell; on "Silversmith's Work and Jewellery," by Mr. H. Wilson; and on "Printing," by Mr. Emery Walker. *Sixth Meeting.*—"Educational Experiments in Elementary Schools." Addresses by Mr. Marshall Jackman on "An Experiment on Reading and Arithmetic," by Mrs. Shaw on "The Story of Hiawatha in the Infants' School," and by Mr. W. G. Taylor on "The Teaching of Geography." No charge will be made for admission to the conference. Application for tickets of admission should be made to the Chief Inspector, Education Department of the London County Council, Victoria Embankment, W.C.

THE annual meeting of the Geographical Association will be held at the London School of Economics, at 4 p.m. on Friday afternoon, January 4th, when Dr. W. N. Shaw, F.R.S., director of the Meteorological Office, will deliver an address on "Atmospheric Circulation."

THE Education Committee of the London County Council has arranged with the authorities of University College, London, for several courses of lectures for teachers. Among such courses are: "The Seven Ages of Architecture," by Prof. Simpson, beginning on January 15th at 8 p.m.; "The Teaching of Geography to Children," by Prof. L. W. Lyde, on January 17th at 7.30 p.m.; "Some Types of Vegetation and the Conditions under which they Exist," by Dr. Fritsch, on January 17th at 8 p.m.; "The Principles of Electrical Science during the Past 150 Years," by Prof. Trouton, on January 19th at 11 a.m.; and "The Study of German Literature," by Prof. Robertson, on January 19th at 11 a.m.

THE Modern Languages Holiday Courses Committee of the Teachers' Guild has issued a report on the courses arranged for last summer. It appears that forty-two students attended at Tours, sixty-eight at Honfleur, and thirty-six at Neuwied. There were no entries for the Spanish course. Courses, lasting from three to four weeks, will be held in August, 1907, at Tours and Honfleur, France, and Neuwied am Rhein, in Germany; also at Santander, in Spain, if any entries are received by July 1. The date of the preliminary meetings at Tours, Honfleur, and Neuwied will be August 2nd, and the courses will begin on August 3rd in the French centres and on August 5th at Neuwied. The representatives of the English committee appointed to attend with the students will be at Tours, Mr. E. Buck, Christ's Hospital, West Horsham; at Honfleur, Mr. J. V. Saunders, Hymers College, Hull; at Neuwied, Mr. E. Sharwood-Smith, Grammar School, Newbury. A preliminary circular, giving more detailed particulars of arrangements and lists of books to be read in preparation for the courses, will be issued shortly, and the handbook, in which the final arrangements, with the syllabuses of the lectures and lists of householders who will receive students, will be published in May. The courses in each centre will be graduated to suit the relative proficiency of the students. To be able to derive profit from the courses, students should have a fair grammatical knowledge of the language of the country visited, and be able to read its literature with some facility.

ANDREW'S DAY, always a football festival at Eton, is year made more worth recording than usual by of the presentation of various gifts to Dr. Warre. Elgin's speech was worthy of the occasion, and could have been happier than his allusion to the tto of "Warre's." It has been Dr. Warre's great ment that the sentiment expressed in the word ther" has spread over so large an area of Etonians, ger than the obtrusive band who contribute to the ny Press. An outsider, looking down the list of headmasters, finds perhaps only one more familiar Keate's fame has travelled far, and the years of ible rule exceed even the long period of Dr. Warre's stership. But Keate would be amazed could he see ldings of modern Eton, and the organisation which a school, twice as numerous as in his day, without almost without percussion. Eton has had, perhaps, ater Head than Dr. Warre, certainly none more

Cambridge Local examinations last month were 290 centres in the United Kingdom and the s, the total number of candidates being 16,257. In nd following years the senior, junior, and pre- examinations will be held in July as well as er. In the Regulations for 1907 several important are announced. The natural history of animals n introduced as a subject for seniors and juniors, del drawing for preliminary candidates. Changes en made in the drawing sections for juniors and A wider choice of subjects than before is allowed r English, senior religious knowledge and senior hy, and alternative syllabuses may be offered in ental science.

London County Council has given notice that in the tive examinations for fourth-class clerkships précis e a compulsory subject as well as general know- and the choice of modern languages is to be re- to French, German, Italian, Spanish, and Portu- instead of "any modern language" as at present.

pen competitive examination for at least ten situa- male sorters in the General Post Office is to be February 26th. The last day for making applica- February 7th. The age limits are eighteen and one on February 1st. The remuneration is 18*s.* a p to the age of nineteen; then 20*s.*, rising by to 44*s.*, with a maximum of 62*s.* The subjects ination are: writing, orthography, English com- arithmetic, and geography.

result of the Second Division examination held in shows that 540 boy clerks competed, of whom one e was successful; while of other candidates one in was successful. The annual rate of appointment nd-division clerkships during the past six years to be 300.

SCOTTISH.

annual general meeting of the Association of s in Secondary Schools was held in Edinburgh ember 24th. The president, Mr. Thomas Adams, Watson's College, in his retiring address, said e conditions under which inspectors in secondary carried on their duties were adverse to a true of the teacher's work. They all welcomed the to make inspection more advisory and less dicta- But the essential element for the success of the new method was that the inspector should be a man of wide and varied experience. It was a foregone conclusion that no respect would be shown to the suggestions of men who had only theoretical knowledge, or whose practical experience was confined to two or three years in a secondary school. Mr. Adams welcomed the new bursary scheme of the Secondary Committees. The competitive element was to be largely eliminated, and the financial needs of the parents were to be more carefully studied. Dr. Charles McLeod, Aberdeen Grammar School, was elected president for the ensuing year, and Mr. Charles Dougall, Dollar Institution, vice-president.

SOME time ago the Scotch Education Department issued a circular to school managers in regard to a proposed change in the date of the Leaving Certificate examination, and asked for an expression of opinion as to the advisability of the alteration. It appears, from a communication made by Dr. Struthers, that the replies bring out a remarkable diversity of opinion. Approval and disapproval balance one another almost exactly. In these circumstances it is considered inadvisable to carry into immediate effect the change suggested. The Department is convinced of the educational soundness of the reasons advanced for the change, and anticipates that the force of these will be appreciated by many who were at first adverse to the proposal. Additional representations will be carefully weighed if received before March 15th, 1907.

THE autumn meeting of the Modern Languages Association was held in the history-class room of Edinburgh University. Prof. Kirkpatrick, in the course of an address, referred to the position of Latin as a compulsory subject for a university degree in Arts. Germany and France had already dethroned Latin from its old place of honour, and this country could not afford to lag behind. Nobody disputed the importance of Latin, and its inherent merits would always secure for it plenty of students without any measure of compulsion. In the meantime, he was quite willing to accept Latin on the lower standard as an essential part of the preliminary examination provided it disappeared as a compulsory subject in the Arts curriculum. The action of the Carnegie Trust in insisting upon a pass in higher Latin at the preliminary examination as a condition of the payment of fees was a retrograde step, and pressed very harshly upon lady students. The preferential treatment of Latin had caused a great diminution in the number of students taking German. Unless something was done very soon, German would practically disappear from the school curriculum.

THE Scotch Education Department has resolved to constitute the Northern Highlands a separate division for the purposes of educational administration. The new division comprises the counties of Inverness, Ross, Cromarty, Sutherland, and Caithness. It is felt that the special needs and difficulties of the Highlands necessitate separate treatment. It is also extremely satisfactory to find that the new division has been placed under the charge of Mr. J. L. Robertson, who is given the rank of chief inspector. Mr. Robertson has already rendered notable service to education in the Highlands, and with the freedom he will possess under the new conditions he may be trusted to solve some of the most pressing educational problems in those districts.

PROF. LATTA, of Glasgow University, in the course of an address to the local branch of the Educational Institute, dealt with the university training of teachers. He condemned entirely the present system of combining professional training with university study, and pleaded for a

post-graduate course of practical training. Under the pressure of work entailed by the present system the student teachers lost the main benefits of a university training. The object of a university education was to make students reflect, to make them independent thinkers and inquirers in however limited a degree. By combining professional and academic training this was impossible. The system tended to produce methodised automata instead of liberal-minded students. The present university system of isolated subjects of study instead of correlated groups of subjects served to emphasise the weak points in the university training of teachers. Post-graduate professional training and a five-subject degree course with concentration on two cognate or closely related subjects would give an ideal university training for teachers.

THE scheme for an Edinburgh Art School has at last matured. On condition that a suitable site is provided by the Corporation, the Scotch Education Department will give £30,000 and the Scotch office £10,000 out of the surplus of the Board of Manufactures towards the cost of the building. This will leave a sum of £30,000 to be raised by the municipality or by private subscription, and there is no doubt that this amount will be easily obtained. Edinburgh should therefore soon have an art school in all respects worthy of the capital of Scotland.

PRINCIPAL LAURIE, of the Heriot-Watt College, in an address to the Association of Secondary Teachers contrasted the autonomy enjoyed by the younger English universities with the elaborate restrictions imposed upon Scottish universities. In the former they had full living organisms rapidly developing and adjusting themselves to new conditions and requirements, simply because the responsibility was thrown upon them of governing their own affairs. In the Scottish universities it was taken for granted that the last word had already been said on university education, and the ordinances governing them were framed as if they were to last for ever. He admitted that there was much divergence of view as to what should be the nature of the governing body in each university. Personally, he believed that the main thing was to get self-government, and for this reason he would accept almost any form of governing body rather than that the present condition of affairs should continue.

THE Scotch Education Department has at present under consideration the question of issuing for the guidance of managers and teachers *suggestions* as to the scope and method of treating all the leading subjects of the school curriculum. It is hoped that these suggestions will deal with the subjects on the broad and liberal lines that marked those issued by the English Board of Education. At the same time they should be framed to suit the actual conditions of school life, and especially the restrictions of school time. The ambitious and impossible schemes for geography and history in the English suggestions will, it is hoped, have no counterpart in the Scottish suggestions.

IRISH.

MR. WILLIAM O'BRIEN, the well-known M.P. for Cork, has made an offer of rare generosity which cannot fail to have a far-reaching effect on the university question. Briefly, he proposes on the death of himself and his wife to bequeath his fortune, amounting to £50,000, as a contribution towards the endowment of a Cork university. The Queen's College in Cork would be remodelled into an autonomous university for Munster on a popular, democratic basis, available for all classes. The idea is to constitute the governing body from the electe tives of the province, and to make the edu enough to attract a large number of st O'Brien further suggests a scheme whereby should be at once forthcoming. It is that the county councils should forthwith raise the su rates by instalments spread over ten years, being repaid them on the death of himself a If confined to the city and county of Cork th require more than a farthing in the pound, a over the whole province would be less than ha Needless to say, the scheme is strongly supp president, Dr. Windle, and the Lord Mayo leading men of Cork.

THIS scheme, if carried through, means First, Queen's College, Cork, would be cut Royal University; and, secondly, it means t stitution of any other new university in Irel democratic. It does not, however, solve th question, for a Cork university would not Roman Catholic claims for university teacl whole of Ireland. In fact, Mr. O'Brien's proj to Munster, leaving the needs of the rest of I met by another university or university college

MEANWHILE, a committee of Irish Catholic published in the Press an extract from the has presented to the Royal Commission, w the solution of the question by reforming Tri It rejects the plan of a separate universit been rejected by the previous Royal Commis being justified by the population or circu Ireland, as uneconomical, as not giving C equality they claim, since a new universit compare with Trinity, as likely if frankly de to strengthen and perpetuate prejudices, and to the experience of other countries. It separate college under the Royal University makeshift scheme, and giving only a mere second-rate university. In view of what is cal raven plan, which the Government was suppos of a second—a Roman Catholic—college w University, the committee reiterates its opi reformed Trinity would be more satisfactory, able and feasible solution, and would be m pass both Houses of Parliament. The securitie Catholics should be adequate, but a basis of is to be found in the proposals made by cer ex-fellows, and professors of Trinity College t Commission. The bishops, however, are not this suggestion.

AT one time it appeared that the Commi Agricultural and Technical Instruction Depar not be troubled with any criticism by Irish schools, but it is, after all, a matter of congra members of the consultative committee shoul evidence. The fact is that the work of the D secondary schools has given almost complete whatever complaints there are relate to the administrative control, about which everyon that there is serious need of change. It is there should be two controlling Boards for schools working on different systems—the Board and the Department. The witnesses Thompson, representing the Schoolmistresses' Rev. Wm. Anderson, headmaster of Mountjo the Teachers' Guild; Rev. P. J. Hennessy, of

; Very Rev. Dr. Crehan, of Blackrock College, ing the Catholic headmasters. Their evidence ost entirely in favour of the work of the Depart- here was some criticism as to the length of the me, and also as to the inadequacy of the grants; first point satisfactory explanations were given by tcher, the assistant secretary of the Department; he second, no satisfactory explanation can be given, grants to intermediate schools from both Boards gether inadequate.

Board of Technical Instruction under the Depart- as been taking legal opinion on proposals for making on for university scholarships in technical instruc- chemes, but has been advised that they are illegal. ort on the summer courses for teachers shows that nds of the Board, for purposes of this nature, are cient, and will need to be increased if the courses be continued. The Board is also considering pro- arrangements for special courses of instruction for s and foremen in trade.

Irish Society has decided to found a scholarship of ue of £75 a year for three years, tenable at Trinity , Dublin, by women students from Derry and ne, in which districts its property is situated.

WELSH.

S. J. EVANS in his recent address on Welsh in the schools states that, in 1903, 16 per cent. of the examined took Welsh, and in 1905 the number reased to 18 per cent. The French candidates ur times as numerous. In 1903 forty county offered Welsh, and ninety-three schools took up in 1905 forty-five schools offered Welsh, and ut schools French. Of course, schools vary; Evans speaks of one school of 371 pupils all of except twenty-five, have had a thorough and ic course in Welsh. Mr. Evans mentions one f difficulty. This is "the minimum number of two languages required by the Board of Educa- qualify for grants. When schools are unable by or unwilling, to drop either Latin or French, or latter alternative with Welsh, the absolute f hours available for Latin, French, and Welsh diminished" in each case. Still, Mr. Evans hat Welsh should be included, as against any : (1) it has advantages in the teaching of ; (2) its power of forming compounds; (3) its ng with English frees the mind from the tyranny ; (4) by the Welsh boy the Welsh grammar can d inductively; (5) Welsh boys can begin at once study of Welsh literature; (6) nineteen out of Welsh boys will have to deal with Welsh people, not one boy in twenty will require French cal life; (7) Welsh sentiment demands it. We . Evans has implicitly raised the crucial question, y be put in this form: Are the school authorities prepared to substitute Welsh for French in all ty schools of the Principality? If so, a place in iculum is easily found—and the scheme for its inclusion is practicable, if there is unanimity as irability.

emand is made for a separate education code for and a number of educational authorities have d for this. Others are expected to follow. It is Welsh educationists wish to raise the standard, by a separate code more account can be taken of ial circumstances of Wales. It must, however, be remembered that the inspectors in Wales are almost entirely Welsh. It is possible to alter the code too much —for we can hardly suppose the most ardent of Welsh educationists will wish to suggest any specifically Welsh characters in writing, or new figures for dealing with arithmetic, or some Welsh mode of drawing different from what obtains elsewhere. As to history and geography and the other subjects, there is freedom for the teacher to offer his own syllabus, subject to acceptance from the inspector. This freedom, happily, is open to all teachers in England and Wales, and any change by a Welsh code would only be by restriction of the present freedom of the teachers. Nor has anyone suggested that the Welsh teachers are out of touch with popular sentiment. It does not seem, therefore, that the present difficulty is the code. The chief difficulty to progress is in the staffing, and the improvement of the staffing throughout the country is in the hands of the local educational authorities. Great will be the advantage when the ratepayers insist on improving the staffing, whatever the cost may be.

A DEPUTATION has waited upon Mr. Birrell to urge the compulsory teaching of Welsh in the training colleges of Wales. In the newspaper reports of the preliminary meeting of the members of the deputation it is stated that differences of opinion were expressed on the advisability of asking for compulsory teaching. Of course, the fact is that provision for the teaching of Welsh is made in connection with the day training departments in each of the university colleges, for each college has a professor of Welsh. The only question is: Should every student, or every Welsh student, be required compulsorily to attend the courses in Welsh, and to use such knowledge obtained in his school practice and other training work?

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Laboulaye, Le Château de la Vie. Edited by E. B. le François. 59 pp. (Blackie.) 6*d*.—This pretty fairy tale is supplied with a brief note on Laboulaye, notes, and a vocabulary which seems to be complete. The notes contain rather too much of what should be left to the teacher. "Look it up in your grammar" is a suggestion which should, and must, emanate from him, not from one who knows nothing of the special needs of the pupils concerned.

Dent's First Spanish Book. By F. R. Robert. 184 pp. (Dent.) 2*s*. net.—Mr. Robert, whose "Features of French Life" we reviewed on its appearance, has written a First Spanish Book on the lines of the First French and German Books. This method is so well known now that we need not describe it, but only congratulate Mr. Robert on a very successful piece of work. Mr. Symington's illustrations are typically Spanish, and not mere copies of French or German scenes.

Hints on Teaching German. By Walter Rippmann. Third edition, rewritten. 94 pp. (Dent.) 1*s*. 6*d*. net.—This well-known companion to Dent's First and Second German Books has been rewritten by its author to correspond with the new editions of those books. Teachers will find it as helpful as before.

Grillparzer, Der arme Spielmann. Edited by W. G. Howard. iv+143 pp. (Heath.) 1*s*. 6*d*.—This is perhaps the best short story that the great Austrian dramatist wrote, and it is well that it should be edited. It is, however, hardly the kind of book for young pupils, and the addition of a vocabulary was unnecessary, especially as

all real difficulties are well explained in the notes, which are of more than average quality. A section on the use of the modal auxiliaries and of certain adverbs and particles is well compiled, and should prove useful.

Groszväterchen und Groszmütterchen. By Käte Weber. 38 pp. (Blackie.) 6*d*.—This is called a *Kinderlustspiel*, and as such may serve its purpose. It is, however, a little foolish; especially the character of the bluestocking is grotesque, and therefore hardly suitable for representation by a child. The dialogue is animated, and contains many useful phrases.

F. Gerstäcker, Irrfahrten. Edited by F. B. Sturm. iv+203 pp. (Heath.) 1*s*. 6*d*.—There is a commendably brief introduction, without any of the grand talk which American editors too often think it necessary to inflict. The story is good fun; the notes are satisfactory, and the vocabulary is practically complete. This forms a welcome addition to the small number of humorous readers for intermediate classes in German.

Classics.

A Grammar of Classical Latin, for Use in Schools and Colleges. By Arthur Sloman. xvi+480 pp. (Cambridge University Press.) 6*s*.—It is to be feared that this book will fall between two stools. It is too big for the schoolboy, and not complete enough for the advanced student. The student will still go to Roby and Draeger and other works of that sort; while the schoolboy wants something of a different kind. Moreover, since this is a grammar of "classical Latin," it is of no use for the student of historical grammar: the origin and growth of forms and usages cannot be dealt with when Plautus and the early writers are outside the scope of the work. In the Accidence, we note with regret that the marking of quantities is not scientifically done. In grammars, at least in those meant for any but the advanced student, all vowels long by nature should be marked; the absence of a mark would then imply short quantity. What is the use of adding the short mark, which only disfigures the text? And more—in this book, the long vowels are not always marked even in the early pages. In pp. 1–105, the editor tells us, "all quantities which could possibly be doubtful have been marked." But the learner, who is generally careless, cannot be depended on to know the quantities unmarked, *e.g.*, in *sĭnĕ ullo mĭĭtĕ* (p. 102). It is less trouble, more accurate, and more instructive to adopt the rule we have suggested and write *sine ūllō mīlite*. So also we see *quid nĕgōti* (p. 100), *hi hōs* in the declension of *hic* (p. 95) and so forth. After p. 105, only occasional markings are used, *e.g.*, to indicate concealed quantity. We should also direct attention to the description of the vowel sounds on p. 5, which is unscientific: *ă* is not sounded as in English, *fat*, but as in German *hat*; nor is *ē* a diphthong ("*aim*"), nor *ō* the sound heard in *foal*, nor *ĭ* that of *sit*.

In the Syntax, we are glad to see the Construction according to Sense and Agreement according to Position or Attraction more fully dealt with than in most grammars (p. 235 ff.). Mr. Sloman is also clear and good on the construction of compound verbs, and verbs with more than one construction (p. 264 ff.). His whole scheme of case-constructions is good, and presents itself clearly to the eye on the page as well as to the memory. A section on the rhythm of clause-ends (p. 387) is a welcome addition; and that on Prosody is full. The latter part of the book—Syntax, &c.—seems to us to be distinctly the best; and there is some originality in its arrangement. We do not like the print or the page; it tries the eyes somewhat to *read, and the margin is so small that* they are dazzled by the general impression. Nor has the printer how important it is to get as much as possible of digm upon one page or double-page, so as to be the eye all at once.

Selections from Plutarch's Life of Caesar. By R du Pontet. iv+107 pp. (Clarendon Press.) 2*s*.—book, sixty-four paragraphs of about eighteen line are extracted from the Life, and arranged so as "young boys beginning Greek." Compound ver augmented forms are split up by hyphens, and simple notes are added. The book will be a v addition to the number of those suitable for be and may well be stimulating, as the editor found read with Caesar's "Commentaries" and Shake "Julius Caesar."

Plutarch's Coriolanus. Edited with Introducti Notes. iv+70 pp. (Clarendon Press.) 2*s*.—Thi is meant for more advanced students, and calls special remark, except an expression of satisfacti Plutarch is beginning to be read again. The no useful and good, and for Plutarch notes are necessary.

Latin Unseens. Selected and arranged by Marchant. iv+78 pp. (Bell.) 1*s*.—These "Ur range from single sentences, in which we are told, *e.* "Caesar when he came there demanded hostages and slaves," to paragraphs of fifteen or twenty line book is a kind of Latin *Tit-Bits*. We hope that w teaching of Latin is reformed in this country there no room for such books in the earlier years of the and for the later years it is too easy. We cannot use of it. Those who like this kind of book will, h find it easy.

We may mention, for those who may use such b *Latin Vocabulary* " in use in the Junior Forms of Grammar School," compiled by A. C. Price and C wood. 19 pp. (Blackie.) 4*d*.—But to learn lists of by heart! We had hoped that this method was dis ing.

English.

England in the XVIth Century. By Raphael Ho 127 pp. *The Complete Angler.* By Izaak Walto pp. *Captain Cook's Second Voyage.* 128 pp. (E 6*d*. each.—Dr. Rouse never fails to select interestin for this cheap, and handy, and attractive serie cordially commend these last three additions to it are perhaps none the worse for not being burden annotations. Very brief introductions are prefixed case, as usual.

W. C. Perry's The Boy's Odyssey. By T. S. xx+211 pp. 1*s*. 6*d*. *Select Scenes and Passag the Historical Plays of Shakespeare.* By C. H. xi+70 pp. 10*d*. (Macmillan.)—These are inter secondary-school use, and are well edited. The using Mr. Walter Copland Perry's book as a r distinctly good, and Mr. Peppin's introduction is All the usual valuable features of this excellent se reproduced in these editions, which may be safe mended as highly interesting matter for literature

Childe Harold's Pilgrimage. Cantos III. and J. H. Fowler. xiv+136 pp. (Macmillan.) 1*s*. Besides the glossaries and notes to each canto, this little edition contains some well-considered questio jects for essays, suggestions for paraphrase, and

table for repetition. It will be seen at once necessary material for a useful manual has d in these pages. The helps to further study thy of great attention, and, carefully used by ay be made serviceable in enlarging the grasp minds upon these cantos of Byron's poem. nd in every way commendable.

s Traveller and Deserted Village. Gray's leridge's Ancient Mariner. Wordsworth's ms. (Dent.) 1s. net.—In this little volume editions of these favourite works are bound th introductions, notes, and glossaries. The egant and useful.

History.

f British History. Parts VI.–IX. By C. H. K. +18+18+21 pp. (Eton College: Spottis- net.—These are the four parts now published of llabus, bound together in one quarto volume, ne side of the paper only, leaving the other for Mr. Marten's idea is to give teacher and abus, illustrated with genealogical tables and om the best historians, of all British history. over the periods from 1845 to 1815. They will ly useful to the earnest teacher who proceeds th his history lessons. Many of the topics are the form of problem questions. The main nglish history is followed first, and then follow jects," such as Scotland, religion, literature,

f Nineteenth-century History. By P. V. N. 38 pp. (Ginn.) 2s. 6d.—"At the request of desire to use those chapters of my revised nd Modern History' which cover nineteenth- ts after 1815, they are here bound separately," little book complete in itself, with index,

History. Mediæval Period. By A. Kimpster ome. xxviii+246 pp. (Horace Marshall.) s contains between seventy and eighty extracts f English history, drawn mainly from con- ocuments, but partly also from later sources alue, such as Shakespeare and Scott, trans- necessary into modern English. The book n the hands of all teachers, if not of their pictorial illustrations are good, but leave n be desired. The facsimile from Domesday dable under a magnifying glass, but that of a does not prove legible even with that help, ld always wish, with these and similar illus- t at least a transcription could be added of al words. We could also wish that more the extracts could be given than is afforded in account of the authorities given in the sources." Otherwise, the unlearned are apt e extracts as "gospel" truth. But perhaps ncrease the size of the book beyond desirability.

of British History, 1017–1870. By M. E. +395 pp. (Clive.) 2s. 6d.—This is a good tory of England on the usual lines. It is not ch up to date in some minor matters as the s us to expect, but, on the other hand, the entury is better and more fully treated than the case. Each "book" is prefaced by a nd a forecast. There are genealogical tables, temporary sovereigns, chronologies, and an index. The last fifty pages are occupied with a sketch of the outlines of European history during the period covered by the main portion of the volume.

Heroes of European History. By L. Creighton. xii+ 196 pp. (Longmans.) 1s. 6d.—Mrs. Creighton here treats the whole of European history in an interesting way, making her story to revolve mainly, and as far as possible, round the careers of the great men of history. There are chapters on Greek and Roman story, on the Middle Ages and Modern History. There are many good illustrations and seven maps. It is a book which we should recommend as a first introduction for school children to that history of Europe which is so desirable, and for which materials are now being rapidly provided.

The Records of Southampton. By F. J. C. Hearnshaw. 24 pp. (Southampton: Cox and Sharland.) 1s. net.—Prof. Hearnshaw gives an interesting account of some of the borough documents, some of which have been published, with a view to interest the Southampton folk and others in the wealth at their disposal, and to induce them to help in further reprints. Would that other towns would do the same or similar work!

Geography.

Philips' Model Duplex Maps. (Philip.) 1d. each.—This is a series of sixteen double-page maps, each complete in itself, and printed on stout paper hinged with canvas. The covers are utilised for lists of geographical names and facts, at the end of which are inserted a few questions by way of examination. The maps comprise the continents and those regions of the world which are of the most importance, politically speaking. In each case a relief map faces its political or physical counterpart; both are similar to those reviewed in THE SCHOOL WORLD for August, 1906 ("Philips' Model Atlas"), p. 314. They should be suitable for class-work, as they are easy to hold and of a convenient size, while the "lists" and "facts" make a good nucleus for oral teaching. We note that several names on the covers do not appear in the maps, and that, though the spelling on cover and map usually agree, there are exceptions. Nevertheless, a wonderful pennyworth!

Philips' Model Atlas. 1s.—This is the same book—with the addition of a twelve-page index and an extra 6d. on to the price—that we have already reviewed in these columns. The index is, of course, a great improvement, and as the places are referred to in the proper way, viz., by means of their latitude and longitude—and not, after the fashion of some of the modern atlases, by the arbitrary system of combined letters and figures—the educational gain is great. The book is good value for the money, and suitable for junior forms.

Atlas of the World's Commerce. Edited by J. G. Bartholomew. To be completed in 22 parts at 6d. each part.—This publication is pursuing the even tenor of its way, and had reached Parts 10 and 11 by the middle of October. It is quite good, and quite invaluable to students of commercial geography. Part 10 comprises—in addition to Mr. Taylor's instructive gazetteer of commodities (Slo. to Tur.)—a diagram of British import and export tables, and maps dealing with the general commerce of Europe, the Near East and the Far East, and the chief industrial districts of China, Japan, Egypt, West Europe, and West Africa. In addition to what one would ordinarily expect in a commercial map, three features strike us as particularly prominent in this Part 10: (i) The base colours in the general maps show the distribution of vegetation

(forest, prairie, desert), and are therefore much more satisfactory than any arrangement of labels superimposed on a political background; (ii) the navigable qualities of the rivers are strongly indicated; (iii) the regions of greatest cultivation, as shown in the maps of the more undeveloped countries, are very striking. "The Nile is Egypt and Egypt is the Nile" becomes an illustrated truism under this treatment. Part II concludes the gazetteer, and contains an interesting article on the "Development of New Lands," and statistical diagrams and maps of the distribution of food fishes, maize, rye, oats, rice, manioc, and potatoes.

Arnold's Home and Abroad Readers. Book IIIa. The British Isles. 224 pp. (Arnold.) 1*s.* 6*d.*—This is a supplementary volume to a well-known series, and should be read in conjunction with its companion books, IIIa. of Arnold's "Steps to Literature" and "Gateways to History," both of which deal with the British Isles. It is divided into seven parts, the last of which (fifteen pages) affords "glimpses" of Greater Britain. The illustrations, though small, are good; Frith and Valentine, as is right, have been largely drawn upon. The book is interesting, and, for those who like to teach geography *via* readers, to be recommended.

Kent. 128 pp.; maps and illustrations. (Blackie.) 8*d.*—Preceding volumes in this county series of "Supplementary Readers" deal with the counties of the upper Thames, the Midlands, Surrey, Middlesex, Yorkshire, Cumberland, and Westmorland. The treatment of the subject is on the same lines in all: physical geography, history, interesting towns and industries, roads and railways, plants and animals, notorieties, and many other items have chapters assigned to them. The language used is direct and simple, well adapted for junior forms. The aim proposed is to quicken interest in nature-study and geography, more particularly, of course, that of the immediate surroundings in the various counties. A short synopsis at the end drives home the lessons of the book. Here and there in "Kent" description tends to become catalogue, and there is no orographical map. But it is very readable, and should serve its purpose in the schools of the county.

Mathematics.

Examples and Homework in Preliminary Practical Mathematics. By T. I. Cowlishaw. 53 pp. (Longmans.) 1*s.*—The primary object of this book is to secure uniformity of instruction and homework in preliminary classes in practical mathematics conducted by several teachers in one institution. There are twenty-five sets of questions, each set consisting of a number of examples to be worked in class and of a smaller number to be worked at home; alternate pages are left blank, and are intended for notes to be made by the student. Though there is a certain element of value in the idea of securing uniformity of instruction, there seems to us to be some disadvantages in the method here proposed for securing it. The examples themselves, however, are usually very suitable for the particular type of pupils for whom they have been drawn up, but those of set xiii. do not seem to us to be in place in an elementary collection, and there seems to be a deficiency of examples of a geometrical character. The course is meant to provide a year's work.

A Second Geometry Book. By J. G. Hamilton and F. Kettle. viii+292 pp. (Arnold.) 3*s.* 6*d.*—The method adopted by the writers of this volume in their "First *Geometry Book*" *is well known to teachers*; this larger work has been constructed on the same principle possesses the same characteristics. Pupils who fa carry out the instructions laid down should, we obtain a sound knowledge of elementary geometry only hesitation arises from a feeling that the metho in itself, is perhaps carried too far. A method sui beginners is not necessarily suited for more mature and we are inclined to think that a closer appro the Euclidean tradition might be made as the knowledge of geometrical facts and power of re about them are increased. At the same time, we wish to press a personal judgment too far, and we recognise the great merits of the book.

Algebra for Beginners. By William Dodds. (Answers) 60 pp. (Murby.) 1*s.* 6*d.*—The author work has doubtless spent much labour on its prod he states rules clearly, and provides a large nun simple exercises and sets of examination papers. same time, we cannot refrain from stating that we think the book to be at all a satisfactory exposi algebra, and that we should be sorry to see the t of algebra carried out on the lines here laid down.

Tables and Problems. Compiled and arran Thomas Fatkin. 62 pp. (Leeds: John R. Wi Paper covers, 1*s.* 6*d.* net.—The complete title cont addition, the words: "With Formulæ and Soluti ascertaining the annual payments required to assurances for life, endowment assurances, te assurances, immediate and deferred annuities, supe tion, old age pensions, &c.," and is perhaps sul descriptive of the contents. The book is evidently by one who is not a teacher, but is perhaps all t valuable on that account as representing the atti practical men of business. There is, we think, side to the question of what ought to be taught in than that so strongly emphasised in this pamphl there is also no doubt at all in our own mind tha teacher who has to deal with annuities would pro study of the pamphlet. The criticism of the term under "The Elementary School Teachers' (Superan Act" should be of special interest to teachers.

A Rhythmic Approach to Mathematics. By E Somervell. With a Preface by Mary Everest 67 pp. (Philip.) 2*s.* 6*d.* net.

Boole Curve-sewing Cards. Series II. (San lisher.) 8*d.* net.

The approach here described lies through the tion of curves as envelopes of straight lines, the lines being formed by threads sewed on car diagrams in the book show a large number of in patterns produced by simple means that are wel the powers of children who can use a needle. I interesting preface Mrs. Boole gives a short sk the origin and purpose of this method of evol geometric instinct, and we think that even old-f teachers must admit that there are great possibiliti method; it gives results that are so suggestive child who is left to do as much as possible for cannot fail to gain geometric ideas that will be value at a later stage. Even if the geometric fr not abundant, the exercises would be thoroughly ing and sensible.

Rapid Methods in Arithmetic. By John Johnston (Pitman.) 1*s.* net.—This little book is said to be " for the use of the commercial student and the man," and is introduced by a preface which contai

If pupils could be induced to give the con- e which is stated to be necessary for acquiring re would be no great need for a special book thods, but the real difficulty is to get pupils to iselves to the discipline. Many of the rules the book are, though well known, quite ough to deserve special notice; others, again, required in particular lines of business. The rove to be useful for some types of pupil, but e that it offers any decided advantage over the ooks that provide ample opportunities for that t is the special object of this work to inculcate.

y *Algebra*. By G. A. Wentworth. x+421 pp. —In the treatment of his subject, the author epart so widely from the traditional order as do several of the recent writers of text- aphical work is introduced, but the amount nparatively small. Yet the book has decided illustrations of the passage from arithmetic re simple and clear, the selections of examples d to explain the various rules and processes excellent, and attention is given to the orderly of algebraic principles. The range of the book binomial theorem, logarithms, simple limit d first notions of convergency of series. There mbers of exercises, but no answers, though be obtained without charge by teachers on o the publishers.

Science and Technology.

Magnetism and Electricity. By R. H. Jude. ve.) 3*s*. 6*d*.—This book is an extension of Dr. rst Stage Magnetism and Electricity." In trostatics) the idea of *potential* is introduced stage by analogy to an indiarubber air-bag; ntific conception of potential being deferred to ter on *the mathematical aspects of electro-* Parts II. and III. (Magnetism and Electro- much stress as space would permit has been bjects of importance to the young electrical h as magnetic flux and permeability, potential- nd horse-power in a circuit, storage cells, and tic induction. The subject-matter is treated in manner, and the numerous examples worked t add considerably to the utility of the volume. ave preferred to see a more scientific state- *'s law* on p. 276; also, the size of the volume pected to afford a more complete explanation al action of an electric current than that based othesis of Grotthüs.

ourse in Physics. By R. A. Millikan and 488 pp. (Ginn.) 7*s*. 6*d*.—The course pre- s book has grown out of the actual needs of ry work in physics in the University of its most characteristic features have been on e or four years in numerous secondary schools arts of the United States. All branches of treated in a non-mathematical manner, and and clear illustrations render the book attrac- eginner. Two chapters, on molecular motions r forces, are worthy of special mention; in d the relationship of the more important matter set forth in a very clear manner. The to be commended for limiting the range of ssed, and for devoting much space to a de- applications of first principles. The portraits of sixteen of the great makers of physics have been inserted for the sake of adding human and historic interest to the text.

Theoretical and Practical Mechanics and Physics. By A. H. Mackenzie. 112 pp. (Macmillan.) 1*s*.—Education authorities are endeavouring, in many districts, to organise for artisans suitable evening courses extending over a period of three or four years. In a scheme which has recently been brought into operation in the Leeds district, the syllabus for the first and second year includes experimental mathematics, mechanics and physics, and English. This book has been prepared to meet the requirements of the mechanics and physics course; it is also applicable to the same course in day preparatory trade schools. The author is evidently well acquainted with the requirements, and the average attainments, of artisan students, and the volume will be found serviceable in schools of the above nature. The contents are divided into seven chapters, on length and area, volume, mass and weight, density, hydrostatics, statics, and heat. The diagrams and type are excellent, and the volume is marvellously cheap.

Church's Laboratory Guide. Revised and partly rewritten by Edward Kinch. xvi+349 pp. Eighth edition. (Gurney and Jackson.) 6*s*. 6*d*. net.—A book which has reached an eighth edition needs no commendation from us. In its revised form the volume should become still more popular than it has been. We have little doubt it will continue to be a favourite text-book in agricultural schools and colleges—for the students of which it is particularly intended—and to be consulted widely by agricultural chemists.

Miscellaneous.

Who's Who, 1907. xviii+1958 pp. (Black.) 10*s*. net. *Who's Who Year-book*, 1907. vii+148 pp. (Black.) 1*s*. net.—There is a great deal that will interest teachers in this extensive collection of autobiographies. An honourable place is given to distinguished educationists. University professors, schoolmasters, schoolmistresses, writers on educational subjects, and educational administrators are all well represented in the volume. It is clear, in fact, that the editor attaches great importance to successful work in education in deciding which persons are sufficiently important to be included in his gallery of distinguished men and women. There is an unfortunate want of uniformity in the amount of information provided about different persons. We are told too little about many interesting persons and too much concerning other celebrities. The editor might with advantage do more "editing" in preparing the next edition. The "Who's Who Year-book" contains useful and exhaustive lists of facts about the Press, officials, clubs, societies, and so on, which were bound up originally with "Who's Who."

Highways and Byways in Berkshire. By J. E. Vincent. With Illustrations by F. L. Griggs. xiii+443 pp.; 3 maps. (Macmillan.) 6*s*.—Every teacher of geography and history in Berkshire should read this book, both for his own sake and that of his pupils. Of all the volumes in the series to which the book belongs, we remember none from which so much material can be obtained to give life to the geography and history lessons. As a pleasant companion for the resident or the wayfarer in Berkshire, the volume will be sure of a welcome within the limits of the county, and as an addition to the libraries of common-room and school it claims a place. For some 100 miles of its course—from Lechdale to Old Windsor—the Thames with the Isis forms

the upper boundary of Berkshire; and it would have been easy to devote a volume to this great highway alone, which formed the frontier of the country of the Atrebates, who were the original Berkshire folk, and kept back the Dobuni barbarians of the north. Mr. Vincent has much to say of interest concerning the historical and literary associations in which the county is so wealthy, and he glances sympathetically at prominent points of its natural history. He is an ideal guide, with an eye for essentials, a cultured mind, and a fine feeling that prevents him from descending to prolixity. A county is fortunate when its places and people are sketched in the spirit manifest both in the text and illustrations of this volume.

The World's Calendar. Invented by the Rev. J. P. Wiles. (Philip.) 2s. net.—This is an ingenious perpetual calendar which should be of service to historians in determining easily the day of the week corresponding to particular dates or *vice versa*, and to everyone who is at any time concerned with chronological studies. By a simple device of movable dials, the calendar can be set to form an almanac for any year (either for the old or the new style of reckoning), Easter Day can be found from A.D. 1 to A.D. 2199, and dates of all new moons from A.D. 1900 to A.D. 2199. We have tested the calendar for a number of dates and have found it accurate. The date of Easter Day in 1905 provided a good test of the Easter dial. According to the Prayer Book, "Easter Day is always the First Sunday after the Full Moon, which happens upon, or next after the Twenty-first day of March." In 1905 there was a full moon on Tuesday, March 21st, and it might have been supposed that Easter Day would have been on Sunday, March 26th. Easter Day did not come, however, until April 23rd, which is the date correctly shown by Mr. Wiles's calendar. An ecclesiastical full moon is used to determine the date of Easter, and not the actual full phase of our satellite, and this may have accounted for the date in 1905, or the fact that the time of full moon was 4.56 a.m.; but, in any case, the calendar is found to respond faithfully to the inquiry made. Mr. Wiles is to be congratulated upon inventing a clever contrivance, and the publishers upon the tasteful style in which they have produced it.

Education and Ethics and other Essays on Educational Subjects. By Arnold W. Smith. 77 pp. (Bourneville: St. George Press, Ltd.) 2s. net.—Though Mr. Smith has little that is new to say, his essays should serve as an inspiration to the young teacher, leading him to resolve to strive anew after high ideals. We are unable to agree with Mr. Smith that geography is comparatively valueless as a school subject, and we think that there are better ways of teaching it than those he outlines in his chapter on "The Conflict of Studies." The essays are, however, decidedly worth reading.

Sir Joshua Fitch. By A. L. Lilley. 263 pp. (Edward Arnold.) 7s. 6d.—This account of the life and work of a distinguished and good man was well worth writing, and, making allowance for the sometimes unqualified judgments of personal affection, has been written well. Fitch's career was really a compendium of English education for the whole of the last half of the nineteenth century, and not of "elementary" education only. The affectations, and the perhaps necessary official definitions, which separate "elementary" from "secondary" and "university" education are shown to be artificial and accidental by nothing so clearly as by the constant part which Fitch took, and *took effectively, in regulating all grades.* For though he was by official preoccupation and by most intim sonal experience qualified as none other was to s primary schools, his wise help was sought in all t that arose in the educational life of the country.

To review adequately such a book as this, anot should be written. The reviewer looks at the mark ages, and would like to dwell on Fitch's wise and view of professional associations; on such apparen things as "reading aloud," and such large things selection of teachers; on his warning against the of "kindergarten," the abolitio.1 of school fees, e decentralisation, and so forth. On these, as on s other matters, experience has amply demonstrated curacy of his forecasts.

With less satisfaction, perhaps we may remen unwillingness to admit the facts of over-pressure, we remember with less still the vulgar denuncia which he was subjected in certain quarters for hi opinions. In the "teaching" of English litera excessive appreciation of the knowledge of "me and the worrying of the text are influences from w have yet to emancipate ourselves, as also his c view that "the principal duty of a modern Univer to measure results."

For the rest, he was a fine example of the public official, scrupulous in the discharge of h frank in the expression of his views to those wh concerned, loyal to his office, his colleagues, and hi actually and retrospectively, silent in the face of de and a model comrade, as younger men will remem was not so simple as his biographer would somet pear to think. His dovelike manner concealed no of the serpent's wisdom; and he did not alway his whole case. But he was moderate and just. this that made him always ready to admit that th perhaps two valid opinions on any matter—even "detested" Boer war; and he would shout on Mr. Lilley's book will do much to keep his a memory green.

CORRESPONDENCE.

The Editors do not hold themselves responsible opinions expressed in letters which appear columns. As a rule, a letter criticising any review printed in* THE SCHOOL WORLD *will be to the contributor before publication, so that the and reply may appear together.

The Binomial Cube.

THE model known as the binomial cube is no invention. It is, however, little known to teacher rarely used in schools, although most helpful in e cube root and the factors of cubic expressions.

Recently, when visiting a school, I propose exercise for a woodwork class the making of cubes. The exercise not only provided a good accurate planing and sawing, but aroused so muc among the boys that I think a few notes on th may be of use to teachers both of woodwork an matics.

As its name implies, the model represents the of a binomial expression to the third power—

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3.$$

Each term of the expansion being of the third d be represented by a solid: a^3 and b^3 are repre cubes of edge a and b respectively; the expressio represented by three square prisms, each having

ide a and a length denoted by b, while the ex- $3ab^2$ is represented by three prisms of length a section b^2.

the whole model consists of eight blocks which er, forming a cube the edge of which is $(a+b)$ It will be seen that four of the blocks have the section a^2, while the other four have a cross sec- Hence it is an easy matter to make the model rkshop, since it is only necessary to plane up e prisms and saw off blocks of the required and 1" are convenient sizes for the edges of) from each (Fig. 2).

oy cannot plane a short piece of wood satis- it will be found convenient to make the prisms

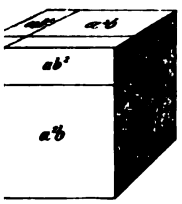

Fig 1.

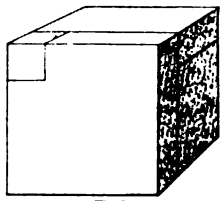

Fig 3.

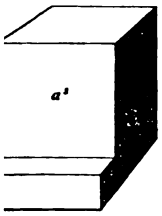

Fig 5

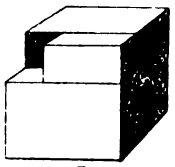

Fig 4.

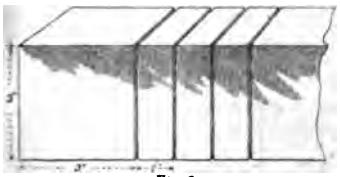

Fig. 2.

length that two sets of blocks can be sawn from

is is the model for demonstration purposes, its astly increased when each boy has one of his g which he can take home and study at leisure. pends half an hour playing with such a model obably have a clearer idea of the difference coefficient and an index than would result from cing.

le manipulation the model can be used to illus- lentities

$$(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$$
$$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$
$$a^3 - b^3 = (a-b)(a^2 + ab + b^2).$$

tle practice a boy can visualise the geometric hese expressions, and he will afterwards have in remembering them.

d labour being cheap, it may be interesting to special blocks to illustrate these identities more simply. Instead of dividing the whole cube of Fig. 1 into eight blocks, it can be cut into five blocks, as in Fig. 3, from which we get at once, according as the side of the cube represents $(a+b)$ or a—

$$(a+b)^3 = a^3 + 3(a+b)ab + b^3$$
$$(a-b)^3 = a^3 - 3(a-b)ab - b^3.$$

Fig. 3 gives perhaps the simplest geometrical representation of the value of $(a-b)^3$. By algebra—

$$a^3 - 3(a-b)ab - b^3 = a^3 - 3a^2b + 3ab^2 - b^3.$$

A comparison of these two expressions with their geometrical equivalents will help to give a boy a clear notion of the process of removing brackets. It will then be interesting to write out the value of $(a-b)^3$ as represented by the separate blocks of Fig. 1, viz.:

$$(a-b)^3 = a^3 - 3(a-b)^2b - 3(a-b)b^2 - b^3,$$

and to trace geometrically the steps by which this is reduced algebraically to the form

$$a^3 - 3a^2b + 3ab^2 - b^3.$$

The factors of $(a^3 - b^3)$ are obtained at once from the model shown in Fig. 4, where a small cube of side b is cut out of a cube of side a.

The remaining portion divides into three blocks, the dimensions of which are:

$$(a-b)\times a\times a$$
$$(a-b)\times a\times b$$
$$(a-b)\times b\times b$$

or

$$a^3 - b^3 = (a-b)(a^2 + ab + b^2).$$

The factors of $(a^3 + b^3)$ are represented most directly by Fig. 5, where the value of $a^3 + b^3$ is obtained by subtracting the block represented by $(a+b)\times a\times b$ from the sum of the two prisms $(a+b)a^2$ and $(a+b)b^2$, or

$$a^3 + b^3 = (a+b)(a^2 - ab + b^2).$$

Chester. ARTHUR DUFTON.

The Worship of the Diagram.

MR. WARREN'S paper in your December issue is on a subject that has demanded attention for some time; examiners and examining bodies seem to have set up as their idol an accurate drawing, and, like other idol-makers, they will only be satisfied when everyone falls down to worship. Moreover, geometry is not the only subject to suffer, for worship is expected to a great extent in chemistry and in physics as well. It is surely a sign of the times that an enterprising firm of instrument-makers has placed on the market a special piece of apparatus to make accurate drawing merely mechanical.

So far as geometry is concerned, a proof of a theorem with an inaccurate figure is, to my mind, worth more than a proof with an accurate figure, while a proof without a figure would be still more valuable. Geometry deals with points, straight lines, plane surfaces, and other things of a like nature which exist only in our imagination, and cannot be accurately drawn. A proof is an exercise in logical reasoning, and a figure is an adventitious aid to our weak imaginations: a figure, as accurately drawn as it can be, is a greater aid than an inaccurate one, and betrays greater weakness in reasoning power. Instruments should be abandoned as soon as possible, and the figure drawn as accurately as may be by hand only, spending as little time on it as one would usually spend on some-

thing which is not essential to the end in view, but merely a crutch to help us on our way.

Physics and, more particularly, chemistry are treated in the same way as geometry. It is often printed at the head of a paper that accurate drawings of any apparatus described are required; occasionally questions are set which can be completely answered by a drawing alone; while in reports on the papers sent in the drawings receive an undue amount of attention, especially with regard to proportion and form. Such questions as those mentioned are surely out of place in a paper on chemistry: they could almost be relegated to a paper on drawing, while a strictly accurate drawing is not essential to a good account of an experiment.

That a drawing of the apparatus used in any experiment very much improves the account of the experiment must be admitted, and admitted ungrudgingly. It saves a good deal of writing, and renders the arrangement of the apparatus intelligible at a glance. But why should a lot of time be spent on making a drawing accurate in proportion or form either in an examination paper or in a laboratory note-book? The real reason why a drawing should be made in a laboratory note-book is that it serves to record the exact way in which the apparatus was arranged and the kind of apparatus that was used. These are the two points that a drawing should bring out clearly, so that if, at any future time, the same kind of apparatus is required, the method of setting it up can be quickly seen. Surely a drawing correct in perspective, proportion, and form is not required for this purpose: a diagram consisting of straight lines would almost be sufficient from the point of view of form; while if a beaker did happen to be out of proportion compared with the rest of the apparatus, the experimenter would hardly be likely to hunt for a bucket in mistake.

As a rule, the time devoted to science is small enough, and it should be devoted entirely to teaching the methods by which the facts of the science are acquired. Time spent in the laboratory in producing elaborately accurate drawings is wasted. So long as the drawing gives a clear idea of the apparatus to those who are accustomed to deal with it, all that can be rationally demanded has been done.

To return to examinations: it is surely unjust to those boys who cannot draw to assign any marks to drawings in a paper on chemistry. Their knowledge of the facts and methods of chemistry may be sufficient to answer the questions set in a satisfactory manner; their drawings may not be so good as those of other boys whose chemical knowledge is less while their ability to draw is greater, and in this way a false equality in chemistry is established between them. It is worth remembering that the drawings which accompany contributions to the learned societies are usually diagrammatic. Of course it must be admitted that the power of drawing any object accurately ought to be cultivated; but there is a time set aside for that, and the natural inability which some boys have in this respect ought not to count against them in a subject where an accurate drawing is not required.

W. A. WHITTON.

Bridgend, Glam.

A Science Syllabus for Preparatory Schools.

MY recent letter on the above subject has had the beneficial effect of eliciting some important information from Mr. Oswald H. Latter. It seems that the elementary science papers of the Common Examination for Entrance to Public Schools follow the lines of the scheme c by the sub-committee of the Public Schools Science Association; otherwise the two would scarcel intimately associated in his argument.

Now, my main contention is for a syllabus. M says that its imposition would be detrimental to interests of science teaching; and yet this body of immediately after the establishment of the Com amination, drew up a scheme covering, as he says, pages in double column, arranged under the ' Botany,' ' Zoology,' and ' General,' and forming ing calendar for the guidance of teachers." If th a syllabus, by what term shall we characterise i is the very point I urge—in principle, and with th of official sanction. I would therefore suggest scheme, in a condensed form, or preferably *in ex* it appeared in the number of the *Preparatory Review* for March, 1905, should be published elementary science syllabus of the Common exa Is this unreasonable?

It follows that my suggestion has not been re unsound, but the reverse, for it can scarcely be that an unofficial scheme makes for the gui teachers, and that an official one has the opposite

As an enthusiast myself in the matter of scien ing, I may perhaps venture to agree cordially principles Mr. Latter lays down, viz., that t should be undertaken *con amore*, and that pr science work should develop the powers of observ arouse an intelligent interest in natural phenomer

I will not further trespass upon your space by into side issues.

Brighton. E. J. PETI

Language Teaching in the Sixteenth Cent

THE name which Mr. Chaytor did not reco writes it on p. 456, vol. viii., as Ludnici Vini genitive case of Ludovicus Vives.

Perse School, Cambridge. W. H. D.

[PROF. FOSTER WATSON has written to make correction.—EDITORS.]

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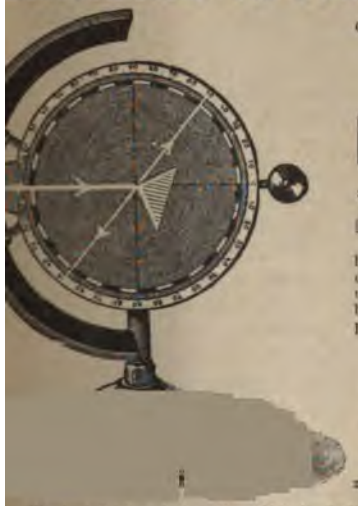

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ACE OF CLASSICS AND SCIENCE A GENERAL EDUCATION.[1]

the Hon. and Rev. E. LYTTELTON, MA.

l be expected, no doubt, that I should ace my remarks on this subject by some lest admissions as to my own unfitness g anything on a question so controver- to be useful to an audience of experts. f this unfitness depended on lamentable of natural science I should be the first it. But I don't admit that ignorance of these two subjects disqualifies a man ding a fairly sound opinion as to their a general education, and as to the by which they are taught. It was said in these days there were two things re- a classical headmaster: the first was to aboratory; the second was never to go Now this is wrong. If he be a man trained he probably possesses the very ification for hearing and judging of a sson—that is, total ignorance of the sub- r only a man so equipped can possibly the lucidity or obscurity of the explana- en. If I hear a lecture on inorganic salts city or a frog's heart I start fair with ful audience, knowing exactly what they at is, nothing. But if for a moment the goes too fast for me—and he often does ure that he is leaving several of the boys o.

hen I go to hear a classical lesson I am of this insight, and have to trust to l more complex indications, not to the sensation of fog gathering in my own o be a good critic of a science lesson, a headmaster ought to know nothing bject, and you gentlemen are to be con- l on nearly all of you possessing one of hly qualified judges, who may enter your oms any moment. So when Sir W. in one of his Royal Society addresses the slow progress of scientific studies in was largely due to the majority of head-

masters having received only a literary training, he little knew that he was, as the poet says, "thus blindly with his blessedness at strife."

But I must cease from this tone of extravagant self-laudation and come to close quarters with my subject. We have to consider the place of two great departments of human intellectual effort in a general education. Now I conceive that there are certain perils in the discussion of such a question which we must do our best to avoid. They may be summarised under the term nebulousness: by which I mean lack of clear definition of the precise matter under discussion. In educational controversy cloudiness of talk is a mighty generator of heat, whether clouds in the sky are so or are not, about which a classical man has of course no right to an opinion. And to avoid heat in discussion I take to be a duty. Secondly, there is the peril of dogmatism: by which I mean the assertion of opinions and preferences in educational matters without saying on what sort of evidence or reasons they are based. If a writer says emphatically that he believes French to be a better subject for boys than biology, the remark may have a personal interest, just as if he told us he preferred grey clothing to black, or dining in the middle of the day to the evening. But it cannot be a contribution to discussion unless he shows that his preference is based on a principle which we hold in common with him. So to avoid these dangers I will try to make clear what I mean by place: then by science: then to state what sort of pupils are being considered. And in affirming any preference I will try to show on what principle it is based. Hence I may be allowed to hope that if anyone dissents from any conclusion he will show at what point exactly in the reasoning he conceives there to be a flaw.

We begin then with the word place: that is, the relation between two educational subjects. To define this is to show what one subject does for a growing mind which the other does not. (Please pardon platitudes at this point; they are intended as stepping-stones in the argument.) We must get an idea of the faculties which science trains as compared with those which literature trains. Not long ago I heard of a man in a railway car-

[1] al Address delivered before the Public School Science ciation, January 12th, 1907.

riage who remarked to a fellow-traveller that they were passing by a fine field of barley. The other replied that it was not barley but oats. The first man's answer was a remarkable expression of humility. "I am much obliged to you," he said, "for that information. Do you know, it is a singular fact, but I never can tell the difference between one thing and another." Now this gentleman's scientific training must have been superficial, or, at any rate, unsuccessful; but a vast number of educational and other disputants differ from him very slightly, except, perhaps, in candour. Unless we see and agree that we see certain differences between science and literature as instruments of training, we have no right to waste our own or other people's time in saying we believe in one more than in the other.

Please observe, then, that I leave mathematics out of account, and as the remainder of the school time is very largely filled with what may roughly be called literature, I will discuss briefly the differences in the training afforded by these two subjects as educational instruments. But in speaking of science, do I mean experimental work or listening to lectures and watching experiments? English opinion is largely in favour of experimental work, and a good deal is said of its heuristic character. On December 28th we were informed, in an interesting article in the *Times* by Mr. Nicklin, that in America the heuristic system is mightily in the ascendent, while in Germany they believe in lecturing. I will say shortly that for the purposes of discussion I shall take science to mean experimental work done by the pupil himself under supervision and guidance. Perhaps a reminiscence of my school days inclines me to very modest expectations from lecturing. We used to sit in front of the demonstrator, a large group of well-grown athletic boys, unwillingly and languidly watching his experiments. He was a first-rate chemist and an excellent man, but the discipline of the class was somewhat fitful. On one occasion he wished to show us that three different coloured liquids expanded at different rates of speed when heat was applied. I remember the look of three upright glass phials in each of which was a brightly coloured liquid. I hope no one is anxious to learn their exact names. Well, as soon as the heat was applied and the liquids began to rise in the glasses, a murmur was heard which soon gathered volume: "Three to one on the red": and as soon as the lecturer reached out his hand for his punishment register intending to write some one down a Georgic, the cry arose: "He's booking the bet: he's booking the bet." And so our science teaching went on, and in later life I came to believe, on the whole, that experimental work promised better results than lecturing, though it may require relief at times from carefully arranged demonstrations.

Lastly, what pupils am I talking about? A general education nowadays is coming to mean the course of training which, somewhere about 16 or 16½, gradually becomes considerably specialised. So I mean pupils up to that age, and in order not to stray beyond my experie only, not girls.

So much by way of rather a lengthy p We come now straight into the subject asking what is the special nature of the given by experimental work in science; faculties does it appeal? and then we mu tain if literature encourages these same or others equally important: and then be justified in framing a tentative estima place they ought respectively to hold.

I will begin my answer to this questior ing that experimental science appeals to th of interest more obviously than any other except, perhaps, religion. It is custc speak of English people as incurably un and unmusical. I could bring a large nu facts to show that we as a nation have a endowment of musical taste. The evide turn for science is not so strong, nor do there is much interest for it among gir among boys from eight or nine years on extremely keen interest in machinery is fully common. It not unfrequently hap grown-up folk to be entertaining a shy yc has apparently nothing to say on any su heaven or earth: when some one happer something about the inside of a motor, minute the company is regaled with a t accurate information conveyed in terms nical to be understood by anyone pres course, there is a reply to this argumer said that this interest only belongs to t stages of the subject, and that as soor brainwork is required the usual proport off and give it up as a bad job. No d science teacher, like every other, has to fact of a proportion of failure; but I mu tion whether it is as large, or anyhow wi as large, as in the case of classics, wh member that classics have had an immens tage in having been able to crystallise an into the best shape possible all methods ing which the experience of centuries has teed.

Next, observe that I am only claiming initial interest is greater in this subject classics. Lastly, the real practical quest whether science by itself evokes more w literature by itself, but whether there i urgent need for combining the two. If combined I am quite sure the number o is less than when either is pursued in There will be some failures whatever we it is not so often observed as it ought t one cause of this—mind, only one—is source of hope. I mean for this reaso of us, I suppose, have come across a fe mens of those remarkable but limited who are quite invincible in their know Bradshaw, and show astounding powers bining opposites in their suggestions f train service on the Brighton line, we Well, suppose those individuals had b before railways were invented. They we

an unappreciative generation the
really stupid people. Now they
ay directors and ultimately knights.
are faced by an unusually large
te irresponsive young minds, don't
as so many failures, but as indubit-
that new inventions are coming. In-
the failures of science teaching, let
em as the silent heralds of future
nphs.

or the initial interest. I will now
o of the features of science training
e less certain. Huxley speaks of it
he young mind into direct contact
The phrase is a little vague, and a
quaintance with Bishop Berkeley's
d suggest that there was no distinc-
pect between science and literature.
that in a loose popular sense we
tention, what then? Probably the
that minds are thus enabled to dis-
from fiction: are, in short, made
nk this is possible, but advancing
es to all of us the gravity of the
The older we grow the less influence
scribe to logic in human life: and
n judge, men act irrationally, not
brains are muddled so much as be-
ls are weak. But, of course, that is
we should not clear their brains if

ley says that science is inductive
subjects deductive. I will not dis-
this is true, but would rather ask
arm of being deductive? and if the
hat Huxley implies, that in these
the data are supplied by authority,
r to that as a description of much
g in classics, history, mathematics,
geography: except, perhaps, in the
where, I fancy, it is true of much
ng also. But undoubtedly, the
has come over the teaching of other
self largely the outcome of the
.,

xt claim is very interesting. It is
a fine antidote to pessimism, in that
ms to be rampant it suggests its
ge of order amid variety in the uni-
s it does. But let us take nothing
ther ask if facts bear out the claim;
t, be inductive, as Huxley himself
, if the claim were undeniably true,
ind that pessimism and deep discon-
ly fixed in the minds of classical
ans or teachers of French, all of
assume, abominate science, and are
ts of conventionalism, traditional-
rth? But would any sane man de-
eople—if they exist—as pessimists
with discontent? I thought that
against them was that they were
isfied with things as they are, and
ent with themselves and their own
ds was quite impregnable against
all assaults. Anyhow, your secondary-school classical teacher is not often a great student of Zola or Schopenhauer, and the evidence for Huxley's generalisation seems to me very thin. We have also to remember that in discussing a general education we must not bring in results which are only secured by the advanced student. That is constantly done on the classical side in this controversy; and in this case, in so far as the claim for science can be maintained, it means, I think, that the atmosphere is saturated with evidence of the reign of law and order in Nature; which tends to allay disquiet; but this has been the case for thirty years or more, and I fancy your hide-bound classical man is beginning to feel its influence at least as much as the boy who drops his science work at 16½: but the latter is the individual who is under discussion this afternoon.

Once more the great advocate of science-teaching opines that the excessive importance attached to expression as distinguished from subject matter in published utterances would be checked; redundancy would disappear, and a pithy compact style of writing take its place. Now, on such a subject Huxley spoke with some authority, and I cordially sympathise with the hope to which he gave utterance. I trust it will be fulfilled. The need of some such influence is indeed great: especially since we have discarded from our schools the only writer I have ever read who never wasted a word: that is Euclid.

But I must hurry on to enumerate without comment the advantages of experimental science which seem to me indisputable. They are these: constant appeal to reason; constant verification; constant appeal to the senses of touch and sight; teaching of patience and accuracy. Moreover, it brings a boy into contact with an army of discoverers; men of research who are themselves enlarging the horizon of human knowledge. It also, quite in its early stages, illuminates daily life with interest, by stimulating not only the power of the sense impressions but the desire to use them. It also brings into play the precious faculties of imagination and wonder. Now, it may be that I have left something out of this list; if so, there are many here who could supply it: but there remains for us the extremely important task of inquiring exactly which of these benefits are secured by literature, and whether those which are so secured are secured to the same degree as by science: that is, as inevitably and as adequately.

But there is one remark first which I am constrained to make about the use of the sense of touch. Obviously this is a feature of experimental science in distinction from the lecture-system, and one which no other sort of training given in our schools is able to show, unless you consider handicraft and instrumental music to be exceptions. Now I am relying on what I believe is sound physiology in saying that the development of the sense of touch is of real importance to the healthiness of the brain. I speak, of course, under correction; but is it not a fact that there is direct

connexion between the fingers of the right hand and the left lobe of the brain, and what is far more important, between the left hand and the right lobe of the brain? and that, if you wish to give reasoning power to an idiot you begin by training the fingers of both hands to delicate manipulation? If this is so, why then does not the Science Association make it one of its objects to insist on regular training in ambidexterity being given to children under 14? It is impossible to calculate how much of the colossal bulk of our national stupidity might not be got rid of by this means. I am told the Japanese are ambidextrously trained; and why should we hang back? There may be some idea that our games supply the need; but they do not. Racquets and tennis are, from this point of view, bad games; cricket is to a certain extent one-sided; and even the noble game of fives, though producing harmonious activity, trains the arms, not the fingers: otherwise, perhaps, we should find more cricketers and fives' players than at present exist, who are ready to understand a syllogism *in barbara*. Those who teach experimental science can do something to correct this.

In returning, then, to my subject, let me say that this admirable exercise of the faculty of touch is not given by literary studies, nor is the training of the sense of sight or of the memory of things seen, except as regards words and Greek accents. We put, therefore, two benefits down to the account of science as against literature. The training of the reasoning faculty is constant in tolerably good classical teaching, and in this respect there has been an enormous change in the last thirty years. It is often said that classics train principally the power of expression—my conviction is that their value for ordinary boys lies principally in the constant exercise of the reasoning faculty. Is there any time when the young brain is so admirably stirred to its best exertion as when a boy is called up to construe a lesson which he hasn't learnt? In this one respect I think we may claim the advantage for classics—there being no position in the laboratory quite analogous to that of our idle young friend in the class-room. But I must here interrupt our comparison with two cautions. When I speak of literature in connexion with the general education of boys till 16½ I conceive of classics almost wholly as a gymnastic, the enjoyment which we connect with literature being very seldom felt before that age except from English. The second caution is that in speaking of the training of the reason given by classics it makes a considerable difference, in my opinion, whether the old exercise of Latin verses is included or not. It is customary to poke fun at them, and to ridicule the arguments in their favour rather than to answer them; but it is, to my mind, quite unquestionable that, in their early stages, they teach all that Latin prose teaches of obedience to law, accuracy, patience, grasp of English sentences, besides the grand fact that they give a rudimentary idea of the pleasure of creating something, not to mention a sense of rhythm and also verification, similar to that yielded b mental science.

To proceed, then: I should say class ing before 16½ secures, besides training ing, verification to a less degree than s ductive thinking rather less, touch, n imagination and wonder in a very differe that it is difficult to compare the two; an this power of classics depends even n the similar one of science on the enthu personality of the teacher. Indeed, in c the two, I think I am right in saying tha cess of literary training in its broades more dependent on the teacher than th of science. A literary teacher who beli self thoroughly competent will think this ment for his own subject; one who b still has much to learn will perhaps Classical work, however, in schools un fails as compared with science in bringi into touch with discovery and researc may remember an admirable essay by H ship on this subject. On the other ha sical work, even before the 16½ years by, brings a boy more decisively into co life, rich, generous, and epoch-makin history of mankind. Thirty years ago i nowadays I am sure it does, and, I th more vital fashion than science.

The outcome of this comparison is tha great departments of learning cover, extent, the same ground, in that son faculties to which they respectively appe same. But they each have a departm the other does not touch, and even w apparently overlap the nature of the which they profess to give is not at all Now, as soon as this fact is clearly seer tain that among teachers of science a ture all discord should cease. In e discussions why should there be so mu activity: I mean that particular form o which, according to a popular and prob erroneous explanation of radium, m scattering on all sides of an indefinit of heat without diminishing the interna If some Mr. Birrell of the far future sh upon himself to insist despotically that of these two subjects should be taught i ary schools, and he were to invite the v them to decide which of the two was indispensable to human progress, then l none of the elements of a lively time wanting to the atmosphere. But the c so. We are not called upon to state think of these two subjects would r greater loss if it were withdrawn. Ther for both, and both must be and will b to the best of our powers, I hope, as fa the future as our mind's eye can see.

We ought to be fellow-workers als reason that each form of training ough substantial help to the other. Sounc work ought to spare science teachers th of teaching boys how to write in decen

of an experiment: and, similarly, to us will soon be even greater. often, when I hear a poor fellow n a long Latin sentence, or reading written idea of a Greek unseen, the rces itself on me that here is a boy to otion of a cosmos of law and order nd unreal. He would never say or ngs he does unless he had deep within viction that chaos, without form and reigns supreme everywhere. He ct the Latin words to yield anything ound: he would be painfully startled and from that view of God's universe men of science, to rescue him. We : at least, we often fail; and I think that a realisation of the number of has begun to wake in us, incredible ay sound, some long dormant feeling ility. Stirred, then, by it, we call to us a hand. Come to our aid in a al work: come with all that you can ew device, of resourcefulness, of agination, and hope. Bring not only material instruments as well; any- as power "to haunt, to startle, or he most appealing of your lantern- nost quickening of your explosions, uiling of your smells.

us that the modern English boy is grit and backbone. Some evidence ment might be produced, I dare say: other side, you have a fact, hardly d, that in resisting the efforts of his ake him think clearly and show some push on towards fresh truths, dimly but not discerned, he still betrays oms of ancestral strength of char- I doubt if anybody here is under any the difficulty of the task before us. ay briefly be described as the making nds feel the joy of thinking patiently

It is the combining of the severity ific mental discipline, its vigour, and ethods, with the discipline and plea- ry training, in the hope of our vitally re minds than we have succeeded in herto. And if it should be that some- el really baffled and almost appalled us lack of response we meet with in o our boys the rudiments of the laws et me suggest a somewhat novel con- ne of my pupils some years ago tal essay on the subject of there being inclination nowadays for anyone to pointed out sadly but truly the proofs d in every direction, of the prevail- essness, heedless inconsistencies, and in English life. But the gist of his ph was something as follows: "It by my readers that this picture of is somewhat sombre; and that the ards a more prevalent habit of think- w as to be depressing to contemplate. is; but, on the other hand, let us gine the contrary. Suppose people were all thoughtful without exception; everybody in clubs, drawing-rooms, political meetings, and so on: what an awful place the world would be!"

I have only one word to add in conclusion. Much of the last half-century has been noisy with strife over the meaning of the scientific spirit. It has been thought to be hostile to true education and true religion; and most absurd and illiberal things have been said. As to the first if we wish, and we ought to wish, to pursue our great task in a tranquil and hopeful tone of mind, may I commend to you the method of inquiry which I have tried to follow in this paper? It is good to feel sure about the value of the subject we teach: it is good also to abstain from saying that another subject of which we know little is profitless; but it is better than either to have learnt from elementary psychology that there is an urgent need of the other subject as well as of our own. This I take to be liberality based on knowledge, and often the advocates of natural science in education have set a noble example of this liberality in their attitude towards literature. As regards religion, in Huxley's biography it is said that science is not Christian or anti-Christian, but extra-Christian. I see what the definition is aiming at, but surely it is crudely worded, and, anyhow, ought to be qualified by the wise utterance made, as Dr. Gwatkin has lately told us, by a Pope: simply reminding his people that the Founder of our religion claimed to be Himself the Truth, not custom. I prefer to end with this saying rather than with the other.

READING ALOUD.

By Fanny Johnson,
Formerly Headmistress of Bolton High School.

READING aloud is properly one of the home arts, and, like other home arts, it has been too much neglected. Time was when the reading aloud of mother or father to the assembled children was an eagerly expected pleasure of the out-of-school or evening hour, or when a circle of sisters at needlework read aloud in turn one to the others. There were girls' schools in those days, where the lesson in "literature" consisted of the reading aloud by the teacher not of selected passages only, but of the *whole* of some classic, while the pupils, instead of feverishly "taking notes," were pleasingly occupied in fancy-work. Girls brought up in such ways at least enjoyed reading.

I could easily draw another picture—of *dreary* hours spent in listening, or trying to listen, to some droning monotonous reader, or of Shakespeare "Readings," where the parts were taken by persons who did not trouble even to look the play through beforehand, and where the attention of the company was suddenly diverted from literary interests to arouse a slumbering comrade, or to avert the catastrophe caused by unalert exponents who inevitably stumbled upon passages that needed bowdlerisation. Such misadventures tend to put "reading aloud" into disrepute.

...is not altogether an advantage that the teaching of the spoken word of literature should be so now almost wholly connected with the stage. In the modern also, indeed, poems of a more literature are constantly read aloud, but so many clergy are afraid or unable to read the Bible as though whatever else it may be it were at any rate literature. One result of the neglect of this art is a deplorable waste of power and efficiency among platform speakers and members. I begin by speaking of my subject as a mere art. I ought perhaps rather to have described it as a necessary accomplishment for a citizen. The majority of grown persons, men or women, nowadays find themselves at one time or another under the necessity of saying a few words in public. How often in such circumstances does one blush at the uncouth display made by one's own familiar friend or acquaintance! It is not necessary that all men or women should be orators. But a modicum of elegance in speech and bearing ought to be looked for as a matter of course. English men especially often seem to be indifferent almost to indecency about their appearance and manner in public. I have seen distinguished speakers, men of world-wide renown, adopting attitudes and ways upon a public platform, nay, in the House of Commons itself, that ought not to be tolerated in a well-bred boy. One great statesman leaning with his elbow, another rubs his trousers legs as if to polish them, a third up and down as he stoops over his notes. American, French, and German speakers are far superior to us in these respects. Bearing and carriage are part of good speaking, and should be taught to school pupils by way of the reading lesson.

Pupils should learn to read in a graceful attitude with the weight of the body equally distributed on both feet. The reading-book must be light in weight, so as to be held without fatigue. The print should be clear, and the book held at the proper distance from the eyes. Most school children suffer from too much sedentary business, and it should be a physical rest to change from the sitting to the standing position. Here, however, judgment must be used. Growing girls must not stand for more than a few minutes consecutively.

This brings me to the next point, which is indeed the crux in class-reading of this most difficult art. Nothing is so positively painful or wearisome as to listen to a bad reader. And the teacher of class-reading is between two dangers—either to waste the time of the class upon the backward members, and thereby to induce hatred of the lesson on the part of the clever pupils, or to leave all the work to be done by the bright ones, and let the sluggish remain in their sluggishness. I believe, roughly speaking, this difficulty, which applies, of course, to all other subjects in greater or less degree when taught in class, is settled practically in the opposite sense by men and women teachers respectively. Women, so far, are more conscientious teachers than men. ... their impulse is to ... that are ... power, and to help others. But the problem of school ... rather practically to be solved in ... direction—namely, ... the principle ... have still to be given.

Good spelling, which is the beginning ... reading is best, no doubt, learnt as ... used at home. It is often a delicate ... teacher to endeavour to correct faulty ... and pronunciation that are really due ... example. In short the accent and pr... of teachers themselves not seldom lea... improvement. On the vexed questi... pronunciation in regard to which eve... seems to have a different and infallible ... cannot pretend to speak with authori... ably there are several good methods, ... must be intimately bound up with the p... of phonetics, by means of which mu... ment has been effected in the prono... foreign languages, and which are ... applied to the teaching of English sp... whichever system commends itself mo... purposes, the exercises must be simult... to all the pupils, and the time of a class is ... the faults of a single backward pup... physical exercises, such as speaking, ... reading, singing, a child that needs ... dividual attention should be taught ... the others. Where circumstances, ... other, do not admit of this, then that ... suffer. But the majority of children—... is to say, who are not actually d... physique—learn such things more h... successfully by the stimulation of num...

Silent reading, like other re... easily degenerate into mere dreaming; ... well as pupil must be constantly on ... For these reasons the ... of the ... R... names of the utmost importance. Th... are many, and the supply of those th... not inexhaustible few. I am inclined to m... any good reader use in most cases t... any bad book. But in reading, the pri... actually before the pupils' eyes for ... Publishers seem sometimes to vie ... together in bringing out unreadable ... They alternate between selected passag... and poetry, each one more deadly du... text, and abridged editions of Scott, Di... encumbered with notes and introductio... disfigurement of the printing of the text.

Literature is spiritual food, and the u... of a classic is its power to please the ... so to call presented the ... literatu... spite of the printing press it will be the ... in the same traditional sense, that ... speak of life to modern books. This is ... the case of verse, but it applies equal... to prose, such as the novels of Jane Aust... Meredith, or Thomas Hardy, which w... the sake of their sound when those of ... authors lie dead. Certain form... music appeal more readily and unive...

Verse, especially of the jingling or ballad
s the most attractive to young children.
other hand, it is given to few persons, and
lly to none of school age, to impart life
reading aloud of an essay (say) by
lay.

reading lesson should be a lesson in *read-*
oud, and neither an explanation (of an elab-
kind) nor a repetition of the text, for faults
corrected as well in one passage as in an-
and continuity of interest is essential to the
. The saying "In the beginning was the
" is capable of many applications. Read
even a fairly difficult passage from a great
to an intelligent child, *without explana-*
but with just intonation and sympathetic
ion, and you will find the general sense has
nderstood, though a few words may be
iliar. Half of these new words will be at
derstood from the context, and the vocabu-
the pupil thereby immediately enriched,
rest will occur presently in a fresh con-
ich will of itself again, in nine cases out
nake them clear. The Reader, then, must
strictly of text, without any other addi-
tsoever in the shape of glossary, notes,
tion, or examination questions.
, tit-bits, selections, extracts, and every
ncompleteness are to be by all means de-
. School children inevitably suffer to
tent from interrupted work, and thereby
lisjointed impressions. But a work of art
ver kind must be perceived, if at all, as
Imagine, for example, giving a class a
f a picture to look at, while the remain-
ions are carefully covered from sight.
ld therefore select in the case of poetry,
s possible, poems of such a length that
more can be read through in a single
Of prose narrative, or longer narrative
a long enough portion should be read
n the sense of continuity, and to enable
retain the story in their minds until the
nes for the next instalment. The ideal
hould contain (1) genuine literature, not
s in "Tales from Spenser" and the like.
consist of either (2) continuous prose
of a lively kind, with plenty of inter-
ialogue, or of (3) short, complete narra-
yrical poems, or (4) complete dialogues
or (5) a complete section, or book, of
uch as the "Faerie Queene," or "Para-
st." *Dramatic* or *dialogue* reading,
of an actual play or of conversational
of a continuous narrative, serves best
stimulate the interest even of a dull

hers are tempted to provide pictures for
cious attractiveness. But as illustrations
ure they are worse than useless. Beau-
ds should be left to make their own appeal
nagination. Some Readers, in many re-
cellent, are very faulty in this direction.
ires are often weak in conception and exe-
nd can only foster bad *taste in the child-*
ren. The proper use of school illustrations is to explain *facts*—but this subject deserves an article to itself. In any case, the small size of book illustrations and the poverty of the reproductions tend to weaken the perception of what is really beautiful in pictorial art.

Such being the general aim of the reading lesson, the skilful teacher will easily devise means for keeping the class to its proper pitch of alertness. For lyrical poems, or ordinary narrative poems, simultaneous reading by the whole class, or by groups each under an appointed leader, works well. While one group stands to read, the rest may listen with closed books, and be instructed to notify (in the usual manner) when a word or passage is not clearly rendered by the readers. The next group may stand and read in its turn, and finally, perhaps, the teacher may read a verse or two alone, or act as leader to one of the groups. In dialogue passages, whether in prose or verse, parts may be allotted either to individuals or groups, according to the size of the class, *all books* may be open simultaneously, and each group must be alert to take up its portion *instantly*, rising in its place as the preceding group sits. The penalty for not being on the alert would be to miss the turn and let the next group take up the part. A good many pupils object, from inertness, self-consciousness, or diffidence, to hear the sound of their own voices reading aloud alone. But as members of a group they may often be stirred to *esprit de corps*, or collective ambition which overcomes individual diffidence.

Where time permits, pupils may be encouraged to read through to themselves the piece to be read in class, and to note the different effect of the words as spoken from the passage in its dead form, as mentally conceived. Such reading lessons as I am suggesting could be carried on higher up in the school than is usually considered possible for the first of the three R's. The curriculum need not be thereby further burdened. Properly graded reading lessons in the lower forms would have "brought" the pupils "acquainted" with so much good literature that the *literature* lesson proper, as distinguished from the reading lesson, would be spent in studying to more profit the details of a work already well known as a whole. Thus, by my system, Forms III. and IV. (say) would have read through three or four Shakespeare plays in one year, as well as an abridged Scott, or Dickens, or possibly one of Tennyson's narrative poems. The vocabulary of the great writers would be familiar to them as it is in the natural course of things in a cultivated family. When "Hamlet" is already known, a familiar friend, *as a whole*, time is well spent in picking out the cruces for special investigation and comment. But this earlier spade-work must be thoroughly well done in order to secure good results later. I am contending, it will be seen, for the voice of the poet (or *Dichter*, to use the excellent German word, which includes "prose-writer" as well) to be heard in the class-room,

more loudly and more often than the voice of the teacher. Ears accustomed to "sweetest Shakespeare's . . . wood-notes" or to Milton's "god-gifted organ voice" might perchance be led to shudder at the stuff that our printing presses disgorge in the name of literature. Indeed, I sometimes dream of a time when in every school playground pupils may be induced to make a holocaust for the burning and destruction of "books that are not books."

MEASUREMENT OF TIME-INTERVALS IN EXPERIMENTAL MECHANICS.

By J. SCHOFIELD, B.Sc., A.R.C.Sc.
Fellow of the Physical Society.

"The English teach Mechanics as an experimental science; on the Continent it is taught always more or less as a deductive and *a priori* science. The English are right, no doubt." POINCARÉ.

IN this quotation, perhaps unduly flattering to English mechanics, the distinguished French mathematician has crystallised the radical differences between the two methods of teaching mechanics. On the one hand, we have mechanics regarded as mixed mathematics, its exercises consisting in the solution of equations in which mechanical unknowns replace the familiar *x* and *y*. This point of view is typically represented by Lagrange, when in the preface to the "Mécanique analytique" he says, "On ne trouvera point de Figures dans cet Ouvrage. Les méthodes que j'y expose ne demandent ni constructions, ni raisonnements géométriques ou mécaniques, mais seulement des opérations algébriques, assujetties à une marche régulière et uniforme. Ceux qui aiment l'Analyse verront avec plaisir la Mécanique en devenir une nouvelle branche, et me sauront gré d'en avoir etendu la domaine."

On the other hand, we have mechanics considered as pure mechanism and the anatomy of machines. Now, as far as mechanics forms a part of secondary education, there is room for a course involving the best features of both systems of study, a course in which theory goes hand in hand with practice, and in which principles are deduced from and tested by properly co-ordinated experiments. To appeal again to Poincaré: "We can now understand why the teaching of mechanics should remain experimental. Thus only can we be made to understand the genesis of the science itself. Besides, if we study mechanics, it is in order to apply it, and we can only apply it if it remains objective. Now we have seen that when principles gain in generality and certainty they lose in objectivity. It is therefore especially with the objective side of principles that we must be early familiarised, and this can only be by passing from the particular to the general, instead of from the general to the particular."

Since the introduction of laboratory students into the courses of English schools, and especially of practical physics, some experimental mechanics common, but only of the statical kind. ments upon the triangle, polygon, and gram of forces, upon moments and upon centres of gravity, are readily de conveniently applied; to a less extent satisfactorily also, experiments with pu upon friction. There has been, how almost complete absence of kinematical etical experiments, these branches of being almost solely represented by crud ments upon Atwood's machine. No te mechanics can direct attention to this g pedagogic armour without quickly di that it is almost entirely due to the dif measuring the time-intervals of the moti consideration. Almost all the forms of tus designed for experiments in kinetics avoid this difficulty either by a system dences, as in certain forms of pendu paratus, or by special devices; *e.g.*, the spring used with Fletcher's trolley.

Now it would be well if, having recog radical difficulty in experimental kinetics consider whether it is not better to a problem directly, and strengthen our exp means of measuring time-intervals by the ment of some form of chronograph. T pose a course of experimental kinetics upon the plan of a series of studies motions, such as the following:

I. TRANSLATIONS.

1. Uniform velocity; *e.g.*, sound wav
2. Uniform acceleration; *e.g.*, (*a*) falli (*b*) projectile.
3. Variable acceleration: (*a*) regular tion; *e.g.*, pendulum; (*b*) irregular acc *e.g.*, train.

II. ANGULAR MOTION.

4. Uniform velocity; *e.g.*, earth's
5. Uniform acceleration; *e.g.*, pulley a falling mass.
6. Variable
(*i*) Reg
(*b*) pla
(*ii*)

Of these
and
an ordin
fully,
tration
and
which
compl
wails.
of circ
of a
pendul
the

l give the time-intervals occupied in
nown displacements by the system in
This in itself is not a serious matter,
nvenience in the employment of one
nstrument, such as the chronograph,
t a series of kinetic studies may be
preciated.
hese lines, the experimental study of
icular type of motion merely resolves
the construction of suitable signalling
hereby the moving body may record its
certain points by time signals upon a
ph. The particular form of chrono-
largely immaterial. Dr. Griffiths's in-
made by the Cambridge Scientific In-
Co., which marks upon a paper tape in

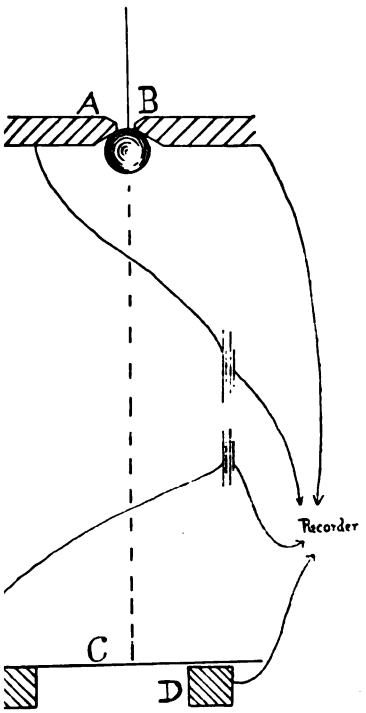

Fig. 1.

r of a Morse telegraph apparatus, may
ed; or, if preferred, some apparatus of
-fork and rotating-drum type. A course
ental dynamics, such as the one out-
e, has been fully worked out in the
epartment of a large secondary school
ter, and in this a tuning-fork chrono-
ling to 1/250th second was employed.
ustration of the methods employed, the
ordinary falling body may be selected.
y lessons upon the tuning-fork and the
gnet, leading to the principle and action
onograph, are supposed to have been
ether with the methods of standardising
-fork, *e.g.*, by the use of a pendulum
through a drop of mercury sending
nals to the chronograph.

An ordinary steel ball, such as is employed in cycle bearings, forms a convenient falling body, a suitable diameter being about 0·5 cm. Suspend this ball, say, by a fine thread between the two metallic jaws, A B of Fig. 1. These jaws form part of an electric circuit, including the recording mechanism of the chronograph, and this circuit will be completed through the steel ball. On the table or floor below place a thin metallic spring, C, adjusted immediately over, but not touching a metallic stop, D; this forms a second electric circuit through the recorder. If the thread is now burnt, the steel sphere will drop, and the first electric circuit will be broken at the jaws, A B; the stylus of the recorder will then make an upward throw, marking the commencement of the motion. On reaching the spring, C, the second circuit will be completed at D by the shock of the ball causing contact between the spring and stop; the stylus of the recorder will then give a downward throw, marking the end of the motion. If now the number of waves marked by the tuning-fork upon the drum of the chronograph between these two throws of the recorder be counted, the time-interval occupied by the ball in falling through the distance A C may be obtained; this distance may be measured by a scale. By placing the spring at different levels, a number of spaces and times may be obtained.

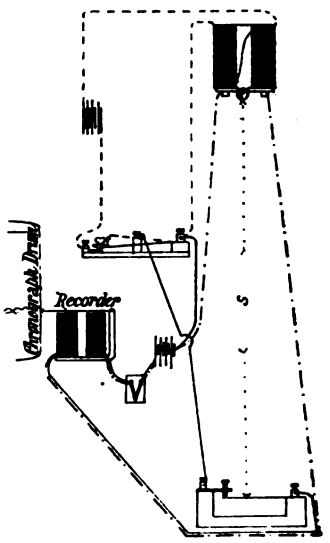

Fig. 2.

A superior method of experimenting, in which two "breaks" are employed instead of one "make" and one "break," and in which the steel ball is held in the jaws by magnetic attraction, is sketched in Fig. 2. A special electric key, which permits the circuit of the recorder being made again during the fall of the body, is employed, and a spring is made to break contact with its stop, instead of, as formerly, to complete the circuit.

The following are actual results of experiment, many taken by a student of fifteen years of age:

Spaces (cms.)	Times (in waves; 252·6=1 sec.)	Times (secs.)
48·1	79·8 (80, 80, 79·5)	0·3159
83·0	103·8 (103, 104, 104·5)	0·4109
148·1	139·0 (138·5, 139, 139, 139·5)	0·5502
199·2	160·2 (159·5, 159·5, 160·5)	0·6342
299·1	196·5 (194, 196, 199·5)	0·7779

These yield by calculation the constants of the following table:

Space	(Time)^2	$s/t^2=n$
48·1	0·0998	482·0
83·0	0·1688	491·7
148·1	0·3027	489·3
199·2	0·4022	495·2
299·1	0·6051	494·3
	Average ..	490·5

The curves of motion for the falling body are here appended.

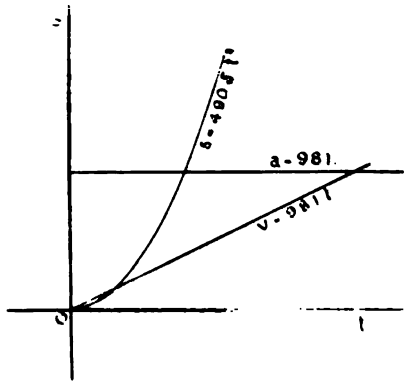

Fig.

In this manner the motion of a body falling under gravity is made the subject of direct investigation; at the same time, on the score of accuracy the results leave nothing to be desired. Further, the student is provided at the very outset with the fundamental constant of mechanics, viz., g—acceleration at the earth's surface. Lastly, the method employed is perfectly general in character, in that the primary mechanical quantities, viz., the displacements and the time intervals, are directly measured.

By suitable arrangements the motion of a pendulum bob may be studied, employing the chronograph to yield the time intervals occupied in executing known displacements, and the subject of simple harmonic motion developed from first principles and in a natural manner. Similarly, apparatus may be devised to prove the fundamental dynamical law $F=MA$. In the present paper, space is too limited to enter into a full explanation of the exact experimental means employed. Perhaps, however, sufficient will have been said to convince teachers of mechanics that the chronograph may form a valuable aid in practical dynamics, and that it deserves to be more widely employed in our physical laboratories. As a result of my own experience, I can testify to the clearer conceptions of mechanical quantities and processes which students obtain as a result of the employment of teaching methods based on the foregoing principles.

THE DIRECT METHOD OF TE ING FRENCH.

By S. A. RICHARDS, B.A.
Grocers' Company's School, London.

THE direct method has passed thr experimental stage; it is no long sary to take up the cudgels on it the battle has been fought and won. It stage that we can afford to make conces review the past, to see whether our en has led us too far in any particular direc to fix upon the just mean between two extremes.

We are not likely to abandon any of t principles laid down by the reformers. I regard to details that considerable latitu be allowed, latitude called for by the va dividuality of the teacher and the circu in which he has to work. There is, p danger of the theorist's overlooking this f only when we come to apply general that we fully feel the force of modifyin stances. It is of some of these mod necessitated by the exigencies of the cl that I wish to speak. I am concerned teaching of French only, and will restri marks to that language, though, doubtl of them will apply with equal force to

So much skill and ingenuity are besto the compilation of the modern class-bo at first sight, one is tempted to think t who is lucky enough to have it plac hands cannot fail to become keenly int his work, and to make solid progress i guage he is studying. But this view in assumption that every boy is bright, i and eager to learn; a state of things every teacher knows to his cost, is far fr the case. His progress depends large ability and desire to make those infe which his book invites him at every tur are boys who will do this; there who, if they possess any powers tive reasoning at all, prefer to mak them out of school. I have a class picked boys who have come to me wit Council scholarships from elementary With them I apply every principle of method without any modification, and goes merrily and smoothly on. But I classes, alas! The difficulty is briefly can we be sure that the dull boy is gras point of our teaching, and that the really being made to work? These shi stitute a fairly large class, and mus neglected. Only a practical schoolmas what misguided ingenuity some boys into play in order to avoid making those dear to the reformer's heart. Experts haps, apt to fall into the fallacy of the social reformer, whose Utopian picture as he would have it might be realised were good citizens.

The difficulty is aggravated by the si

The ideal modern language class would
l fifteen, or at most twenty boys. But
y of us can hope for such a state of
We must put the average at something
irty. What is the actual amount of
practice, of individual attention, that
in such a class is likely to get during
lasting three-quarters of an hour? The
discouraging. Of course, if we could
n every boy really using his brains and
his attention, not only when it is his
nswer, but while others are answering
difficulty would not be so great. In the
right boys we can get these conditions;
te of all that may be said on the subject
g things interesting and securing atten-
teacher knows that there is a numerous
ys who will gaze at you with an angelic
of willing attention while their brain
ng in complete and soothing repose.
the boys who refuse to make the
ffort to infer the meaning of a new word
ntext, however artfully it is introduced
th the aid of explanatory footnotes in
ten more difficult to understand than
self!

we are attacking a fresh page of read-
, and that we rigidly exclude English.
ve to guarantee that these boys under-
we are reading about? We take the
of inviting questions: "Que veut dire
monsieur?" and so on. We en-
answer them in French simple enough
rstood by the boy who could not infer
g of "bientôt" from the text—not an
r. We shall be lucky if we are not
meaning of some word used in the
ur explanation; it is difficult to avoid
ignotum per ignotius. We shall have
however, as to our having made the
ear, for the instant we succeed in this,
sure to ejaculate the word "soon,"
nsciously, making us wonder whether
not as well have told him the English
at once and thus saved valuable time.
er all questions in this way, we shall
rough much in a lesson, while the
he narrative will be so interrupted as
y to diminish its interest. At the end
n, moreover, we shall be painfully con-
the fact that the dullards and the
ve not asked a single question. How
they learnt?

ces are apt to be deceptive. I have
s become quite skilled in answering
ns as: "Où était Robert? Qu'est-ce
? Qui était dans le jardin?" and so
n the text, who yet remained ignorant
ning of several of the words employed
se of the conversation, and apparently
ire to acquaint their teacher with the
even if these and similar tests were
t is impossible to make sufficient use
a large class to ensure every member
nderstanding the text.

Now suppose we are shameless enough frankly to translate the piece, thus ensuring that every boy has grasped its meaning. I contend that we have saved valuable time. Now let us put the English entirely aside and work through the text by means of question and answer, with books open. We shall find the results much more satisfactory now that everyone knows what is being talked about. Repeat the process with books closed, pestering the dullards with questions. Don't leave the passage till the average boy can practically reproduce it orally. We shall thus have achieved twice as much in the time. As for the intrusion of English, you may be sure that, by the other method, every boy who did understand the new words had their English equivalents in his mind. It is only after long practice that "cheval" will produce the same mental impressions as "horse." In spite of the aid of pictures and the exclusion of the mother tongue, the English word will rise into consciousness, and form the stepping-stone between the French name and the object in the early stages. Any process, therefore, that saves time by enabling the pupil to get at the meaning of new words, and so leaves more for using them in their natural context in conversation, brings us nearer this final and desirable state of things.

After the first year we are met with a new difficulty—that of providing suitable written exercises. Those hitherto employed—the completion of incomplete sentences, change of number, gender, person, or tense, the answering of questions—will not carry us very far. If English is to be excluded, we have no alternative but free composition, an excellent exercise (especially when done orally), but one that has its limitations. In the first place, free composition breaks no new ground. It is useful in aiding the pupil to make a ready use of what he already knows, but it cannot be employed to drive home fresh grammatical knowledge. Moreover, it offers boundless scope for the shirker. If he is in doubt about a construction, he avoids it. It does not necessarily foster the habit of thinking in French, for boys invariably form their sentences mentally in English first and then proceed to turn them into French with disastrous results. But the chief objection to it lies in the impossibility of proper correction. In the case of a class of thirty boys, the utmost we can do is to return the compositions with mistakes underlined. We have no time or opportunity to go over his exercise with each boy individually, and, as each version is different, we cannot talk about more than a small fraction of the mistakes collectively. What have the boys gained? I suggest the following alternative.

Take a short, pithy story, complete in itself, the point of which does not fully appear until the end is reached. It will command universal attention. Treat it as I have already described; ask questions on grammatical points; run through the irregular verbs occurring in it, and so on. As before suggested, do not leave it until the class can

viewed steadily and as a whole, teaches the lessons of high morality at all. But, whether that be so or not, it is not these lessons which it is expected to teach in schools. It is asked to fulfil the lowlier ethical tasks of widening the interests, of enlarging the sympathies, of elevating the level of thought, and of showing in some measure the connection between character and destiny. Principal Caird once wrote,[1] "History, like foreign travel, widens a man's horizon, and can scarce fail to broaden his views of life, to correct his prejudices, break down his narrowness of thought and feeling, and give his sympathies a wider range." What is true of the man is true in degree of the child. History, if taught with imaginative skill, lifts the child out of the narrow world of home and school, and transports him beyond the commonplace circle of his acquaintances, placing him in a larger sphere where happen great events, and where he moves in familiar converse with kings and warriors and saints.

(4) Finally, and in the view of the scientific historians primarily, the study of history should perform an *intellectual* function, or rather various intellectual functions. By it the imagination should be stirred. "By constant efforts to recreate the real past and make it live again, the pupil's imagination is at once quickened, strengthened, and disciplined"; so say the American "Committee of Seven."[2] No history lesson, however well-designed and full of knowledge, should be considered to be a good lesson if it never raises the pupils above the dull level of the here and now, or carries them some way towards the magic land of "once-upon-a-time." Moreover, the judgment should be trained, the habit of correct thinking instilled, the recognition of the sequence of cause and effect made familiar. "The chief object of every experienced teacher," it has been said,[3] "is to get pupils to think properly after the method adopted in his particular line of work; not an accumulation of information, but the habit of correct thinking, is the supreme result of good teaching in every branch of instruction." It is comparatively easy to inculcate exact modes of thought in mathematics which deals with abstractions, or in science which is concerned with the invariable and recurring phenomena of nature. But history never repeats itself, and the world to which history introduces a child is precisely that world of affairs in which he will in after-days have to live and move and have his being, a world in which probabilities take the place of certainties, and in which the surest inferences partake of the nature of intelligent guesses. Says Mr. Lecky,[4] "It (*i.e.*, history) is, I think, one of the best schools for that kind of reasoning which is most useful in practical life. It teaches men to weigh conflicting probabilities, to estimate degrees of evidence, to form a sound judgment of the value of authorities. Reasoning is taught by actual practice much more than by any methods." Again, by means of history t of impartiality should be fostered. Hist tains the record of many heated conflic have cooled to a point which makes anal sible. "We can study," says Principal Cai actions and the conflicts of past times, t acters of the combatants, and the varying of the causes for which they lived and di the unimpassioned calmness of the observ phenomena of nature." It is possible, t for a teacher to point out how much of tr was on each side, how much of nobleness of the contending forces, and to show th majority of cases the complete victory o belligerent cause would have been to the humanity. If pupils in any large number taught this lesson so well that they can years apply it by analogy to the conflicts own day, there will be a perceptible less the bitterness of political and religious cont

The history lesson, further, may be so as to impart other valuable habits. Bet most subjects, history may be made to p training in the use of books. Few bra knowledge are more important than thi who wishes to lead the intellectual life days of voluminous writing, of frenzied tion, and of unscrupulous advertising books to read, how to read them, how t and arrange material, how to separate th from the important—the knowledge of t similar matters is worth years of toil to a By means of the teaching of history this wisdom can easily and pleasantly be imp classes of older and more advanced stud

Such are some of the great aims—civi and intellectual—which the teacher of hist keep before him. Which of them will b given moment the most prominent will, a already remarked, depend on the ages of h and their circumstances. For example, v young children it may be enough to att graphic narrative of wonderful and here to quicken their imagination, and to wak to sympathy with "hopes and fears the not." With older children the civic id become increasingly prominent.

In my next, and concluding, article, I s with the materials of history and the m teaching suited to the various ages of pu calculated best to attain the different education.

The Gospel accordi[illegible]

240 pp. (Methuen.) and will be found of an experienced required in an ed duction is capitally the editorial wor of arrangement. helpful.

1 "University Addresses," p. 228.
2 Report, p. 26.
3 *Report of Committee of Seven*, p. 18.
4 *"Political Value of History,"* p. 47.

Y OF THE LIVING PLANT.

IMENTS FOR "PRELIMINARY CERTIFICATE" STUDENTS.

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the Royal College of Science, London.

II.

pose of the experiments described present article is to examine the ions under which the adult green its food-supply.

INED FROM THE SOIL.—It was seen ticle (THE SCHOOL WORLD, January, edlings, growing in damp sawdust d only, presently droop and die, plants in soil remain healthy and ze. Burn to ash in an open crucible an plants of various ages, pre- d and dried in the oven; weigh notice that it increases in amount of the plant. Similarly weigh the rom bean seedlings of various ages p sawdust or clean sand, and notice nt does not increase with the age g.

mineral matter is evidently derived Shake up a handful of soil with ter the liquid through filter paper Evaporate the clear solution thus obness on the water-bath, and after- y heat the dish and its contained he Bunsen burner, to drive off any matter. Notice the residue of r. This experiment proves the pre- of mineral matter soluble in water.

E SOLUTION.—Make, or ask a dis- ist to make, the following solu-

itrate (consists of potassium, nitro- gen), 1 gram.
loride (consists of sodium and ram.
phate (consists of calcium, sulphur, ½ gram.
sulphate (consists of magnesium, oxygen), ½ gram.
osphate (consists of calcium, phos- oxygen), ½ gram.
re.
ps of a dilute solution of sulphate iron should be added.)

TURE.—Fix two similar bean seed- an corks in clean bottles, in the in Fig. 1. Let one bottle contain and the other the nutri- solu- above. Cover the out- lls of brown paper that the first hat the second

xperiment ch certain he ef

example, calcium sulphate may be omitted and the calcium phosphate replaced by sodium phosphate. The plant will be then deprived of calcium only. Deduce, from the effects observed, the necessity of supplying lime, *i.e.*, a compound of calcium, to soils deficient in calcium; and extend such considerations to the subjects of scientific manuring and rotation of crops.

GEOLOGICAL FORMATION OF SOILS.—Observe (*e.g.*, in a quarry) the action of frost, &c., in breaking up rocks to fine particles. The distribution of soil by water, the action of earthworms in turning over the soil, and the part played by decaying leaves, &c., in the enrichment of soil by humus, also form subjects for interesting outdoor observation.

GENERAL BEHAVIOUR OF ROOTS.—The interest of the peculiarities noticeable in the behaviour of roots lies in their association with the duties of roots. In germinating bean plants notice the direction of growth of the radicle. Try to induce radicles to grow upwards or horizontally. Cut

FIG. 1.—Plant growing in a nutritive solution of salts. The bottle should be covered with a roll of paper to keep out the light.

FIG. 2.—The tip of a root showing the root-cap (magnified).

off the tips of a few bean radicles, and notice whether the treatment interferes with their "sense of direction."

Hold up to the light the tip of a [illegible] radicle and observe the thimble-like root-cap [illegible] 2). Of what advantage is such a cap [illegible] a root making its way between [illegible] Observe the method of [illegible] In what order do the [illegible] the branches arranged [illegible] (developed radicles [illegible] tion of growth [illegible] advantage [illegible] Answer [illegible]

DIOXIDE.—Fit up [illegible] g. 7. In the bottle [illegible] leafy twig, which [illegible] been [illegible] hours in the [illegible] ree it [illegible] ose the whole [illegible] for a [illegible] test the [illegible] ns, none

dissolved mineral salts, which is absorbed by the root-hairs clinging to the particles of soil (Fig. 3).

OSMOSIS.—Wet a piece of parchment paper or thin bladder (having previously held it up to the light to be sure there are no holes in it), and tie it tightly across the mouth of a thistle funnel.

FIG. 3.—Tip of a root-hair with adhering particles of soil. (× 240.)

With a "fountain-pen filler" fill the head and an inch or two of the stem of the funnel with a strong solution of salt. Mark the level of the salt solution by a strip of label on the stem, and then put the funnel into a beaker of water in the manner shown in Fig. 4, and put the arrangement aside for a few hours. Notice that the salt solution rises in the stem of the funnel owing to the passage of water from the beaker through the membrane. Such an exchange, taking place between two liquids separated by a permeable membrane, is called osmosis. It should be noticed that the greater flow is from the weaker liquid to the stronger.

The experiment illustrates the manner in which the very dilute solution of salts in the soil passes into the interior of the root-hairs (which contain a much stronger solution), and thence reaches the root itself.

It will be understood that by osmosis the root-hairs and the region (the cortex) of the root in immediate connection with them are kept in a state of distension (turgescence), the contained "sap" being thus under considerable pressure. This is one of the principal causes of "root pressure."

ROOT PRESSURE.—In spring cut through the lower part of the stems of various vigorously growing plants (*e.g.*, vine, scarlet runner, sunflower), and notice the free escape of water from that part of the stem still in the ground.

GENERAL BEHAVIOUR OF THE STEM. (*a*) *Sensitiveness to gravity.*—Notice the vertically upward growth of most stems—in direct opposition to the force of gravity. Place on its side a flower-pot containing a growing plant, and notice how soon the stem, thus rendered horizontal, once more assumes the vertical position.

(*b*) *Sensitiveness to light.*—Observe the bending towards the light of the stems of plants grown on window-sills. Put a pot of seedlings inside a large box, at the closed end, the opposite open end being directed away from the window of the room. Notice that the stems of the seedlings become long, weak, and straggling, develop only small and very few leaves, and grow towards the dim light of the open end of the box. Grow other seedlings in total darkness, and write careful descriptions of their colour, size, and other peculiarities.

(c) Sensitiveness to contact.—Place sticks vertically in the ground by French or kidne seedlings. Time the period of revolution stem before it comes into contact with the In what direction does the stem revolve scribe any differences in the behaviour of th after its stem has come into contact wi stick. Similarly observe the behaviour o ing stems of convolvulus and hop.

THE PATH OF THE WATER CURRENT.—(move from a growing leafy twig a ring of an inch of the bark and soft tissues bene so as to expose the wood. Notice that the above the ring remain fresh and crisp, sl that their water-supply has not been int with. The water must therefore travel either the wood or the pith.

(*b*) Cut off a similar leafy twig and leav the sunshine with its cut end dipping into coloured with red ink. Examine it after hours and observe that the wood is colour while the pith is not stained. The water fore travels along the wood.

(*c*) Similarly put a cut herbaceous shoot of bean) dipping into coloured water, and few hours cut open the stem and see the c woody strands of conducting vessels.

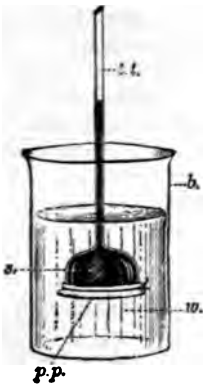

FIG. 4.—Experiment illustrating osmosis. *b*, beaker; *w*, water; *p.p.*, parchment paper; *t.t.*, stem of thistle funnel; *s*, salt solution in head of thistle funnel.

FIG. 5.—Experi prove that greer exposed to s give off water.

TRANSPIRATION.—Take a piece of car about four inches square, and make a sm in the centre. Pass the end of a leaf through the hole and make up with soft w chinks between twig and card. Put the c a tumbler containing water, so that the c of the twig dips into the water; and invert card—thus covering the leafy end of the t second tumbler which is clean and dry (F Put the apparatus in the sunshine and lc evidence that the leaves are transpiring giving off water vapour.

MEASUREMENT OF TRANSPIRATION.—(*a*) I same quantity of water into each of two test tubes and let the end of a leafy twig d one. Weigh the tubes, place them toge the sun for an hour, then weigh again and

ne the loss of water due to transpiration by the ves. Repeat the experiment (*b*) in the dark,) in the sunshine after smearing the surface of ch leaf with vaseline; and notice any differences om the results obtained in Expt. *a*.

STOMATA.—Plunge fresh leaves of various lants into hot water. Note and describe carefully any signs that the interior of the leaf contains air, and that pores (stomata) through the af-skin put this air into communication with the terior. How does this observation throw light n the result of smearing leaves with vaseline in e transpiration experiment?

THE SOURCE OF THE PLANT'S CARBON.—It is mmon knowledge that more carbon (charcoal) n be obtained from an old plant than from a ung one of the same kind. Notice the absence carbon in the nutritive solution which has been and to replace satisfactorily the food taken up m the soil. The soil evidently need not contain carbon. The only other possible source of bon is the atmosphere. Expose to the air a cerful of clear lime-water. What evidence is ined of the presence of a carbon compound e air?

—A, Tropæolum leaf, on which have been pinned the halves of a split , *c*. (× ½) B, the same leaf tested for starch with iodine solution, r exposure to sunlight for an hour. The part shielded from the t remains bleached; the rest of the leaf has turned blue.

E CONDITIONS OF CARBON ASSIMILATION.—formation of carbonaceous compounds from aw materials supplied by soil water and air ctively is called carbon assimilation. One of compounds—starch—so constantly appears g the process, and is so easily tested for, the conditions of its formation may be taken e conditions of carbon assimilation generally.

he Necessity of Light.—(*a*) Pluck a leaf ch has been exposed to sunlight for several rs, kill it by boiling in water for a few minutes, it in methylated spirit until the green colouring matter (chlorophyll) is extracted, wash with er, and then immerse in iodine solution. The duction of a dark blue or purple colour with ne is a proof of the presence of starch.

) Keep a plant in darkness for twenty-four rs, then pluck a leaf and test it for starch as Expt. *a*. None can be detected. Any starch ent therefore disappears in the dark.

) Cover with cork (or tinfoil) part of a leaf a plant kept in darkness for twenty-four rs, and then expose to sunlight for a few rs. Remove the cork and test the leaf as re. No starch is present in the part previously ered; the rest of the leaf contains abundant starch (Fig. 6). Because light is necessary for carbon assimilation, this process is also known as photo-synthesis.

The Necessity of Chlorophyll.—Expose to sunlight a variegated leaf (*e.g.*, variegated geranium), and test for starch. None will be found in the colourless part of the leaf, but only in the portion coloured green by chlorophyll.

The Spectrum.—Decompose a beam of white light by passing it through a prism, and observe the band of colours produced.

The work of the chlorophyll of the leaf is to select from white light certain of the colours composing it, and put the energy of these colours at the disposal of the living matter (protoplasm) of the leaf. The protoplasm performs the work of carbon assimilation in virtue of the energy thus supplied to it. It should be borne in mind that chlorophyll itself is incapable of assimilation.

The Necessity of Warmth.—In winter prove that starch is not formed in the leaves of plants

FIG. 7.—Experiment to prove that leaves do not make starch unless the air with which they are supplied contains carbon dioxide. s, tubes containing lumps of soda-lime; s', jar containing a solution of caustic soda.

FIG. 8.—Experiment to prove that green leaves supplied with carbon dioxide, and exposed to sunlight, give off oxygen gas.

in very cold air, even when they are exposed to bright sunlight. The intensity of light may be gauged by the time necessary to produce a certain standard tint with photographic printing-out paper.

The Necessity of Air.—Keep a plant in the dark for twenty-four hours, and then smear one leaf with vaseline to block up its stomata. Expose the plant to sunlight, and afterwards test for starch both the smeared and an unsmeared leaf. Explain the results observed.

The leaves of the bean and various other plants are covered by a waxy bloom which prevents them from being wetted by rain, and thus protects the stomata of their upper surfaces from being blocked by water.

THE NECESSITY OF CARBON DIOXIDE.—Fit up the apparatus shown in Fig. 7. In the bottle put a green plant or a leafy twig, which has been kept for twenty-four hours in the dark to free it from starch; expose the whole to sunlight for a few hours. Then test the leaves for starch; none

can be detected. As the plant is supplied with air which has been deprived of its carbon dioxide by the soda-lime and caustic soda, but is otherwise under normal conditions, the failure of assimilation must be due to the lack of carbon dioxide.

OXYGEN AS A WASTE PRODUCT OF ASSIMILATION.—Over an inverted submerged funnel holding a bunch of green water-weed invert a test tube full of water as in Fig. 8. The water used (*e.g.*, tap water or river water) should contain dissolved carbon dioxide. Expose the arrangement to sunshine. Gas is given off in bubbles from the weed and collects in the tube. Test the gas with a glowing splinter of wood.

THE DISTRIBUTION OF LEAF-MADE FOOD.—Observe the effect of ligaturing a twig below the leaves, as by tying a wire or cord tightly round it. In such a case growth usually ceases in the part of the twig below the ligature, while the upper part of the twig grows much more luxuriantly than before. The food, made in the leaves, must therefore be distributed by the soft tissue, called *bast*, lying between bark and wood.

The foregoing experiments show that the food-supply of an ordinary green plant is entirely inorganic in origin. This should be contrasted with the organic nature of the food of animals. The plant raises matter from the inorganic to the organic level; the animal eats the plant.

THE PROBLEM OF MORAL EDUCATION.[1]

THE batch of books before us suggests the three different lines by which teachers approach the problem of moral education. There is, first of all, the method of the Moral Instruction League, which subsectionises virtue and teaches it by compartments without any reference to a Divine Being or a Divine Sanction, or to a conscience within that shall be, as Cudworth puts it, "the best looking-glass of heaven"; there is, secondly, the method based on the doctrine and formularies of the Church; and thirdly, there is the method based on the teaching of the Bible.

"Can virtue be taught?" The question is as old as Socrates, and yet ever new. The answer of Socrates was that it was a matter of practice, not of teaching; that virtue could not be imparted, but was learned by doing. And, indeed, it is clear that before the mora comes the moral law, the categorical ' and only in obedience to this law can c moral enlightenment; by doing the will ' of the doctrine. To take a small insta League gives a lesson on tidiness for under seven years; but the best educatior ness for infants is a tidy home, a tidy cla and making the little six-year-olds thems operate in securing and maintaining this But, premising this, no one denies that h conduct are largely influenced by reflecti that, over and above the instillation (habit, it is the office of the teacher to m child reflect, to induce what Dr. Arnold regarded as the characteristic of the nature, moral thoughtfulness.

This may be done in different ways Geddes adopts the Socratic way; by skilf tioning he leads his little learner to rea difference between the great outside w visible things and the far greater inwar of thought. Mr. Gould adopts the (method; he is a good story-teller; he vividly before the child's imagination noble and ignoble; then quietly, simpl tively, not seldom superfluously, he po lesson. One cannot help noting that, any reference to God is rigidly tabooe stories are admitted; and one cannot help amid all this parade of scientific method, it is possible to have an ethical scienc without a norm. The third method is dactic, and that we have in Miss G "Letters to a Godchild," written to he time of confirmation, and putting before meaning of that step. The book is a(clear, both in plan and in style, though glow and that abundance of heart out (the mouth speaks. Mr. Burn's littl "The Apostles' Creed," is also didactic able *Leitfaden* to the history of the creed o its meaning, and its bibliography.

Lastly, we have the books on the Bib Dr. Kingsmill Moore takes the German of literature teaching, as expounded by M Dale in the 1896 volume of "Special R and applies it to the Bible lesson. It is practical and helpful little volume, for t method of Bible teaching is a subject \ most training centres is left to shift for the price we pay for our ecclesiastico squabbling. Canon Newbolt's book is an to apply this same method to the Gospel ing to St. John; this is the most difficul to teach, and, for that reason, the help a book is the more welcome. Mr. Nickli also gives help to the teacher where needed, for every year's discoveries thr(light on the origins of Israel; the vc better written than its predecessor; it i date with its information, and well illu Both this book and the book on Isaiah i.–xl.) by Mr. Towers are suited to th classes of a secondary school. Dr. Brigl

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1 "Life and Manners." By F. J. Gould. 340 pp. (Sonnenschein.) 2*s.* 6*d.* net.
"The World Without and the World Within: Sunday Talks with my Children." By Patrick Geddes. 38 pp. (St. George's Press.) 6*d.* net.
"Letters to a Godchild." By Alice Gardner. 104 pp. (Ed. Arnod.) 2*s.* 6*d.* net.
"The Apostles' Creed." By Rev. A. E. Burn. 120 pp. (Rivingtons.) 1*s.*
"The Way to Teach the Bible." By Rev. H. Kingsmill Moore. 120 pp. (Longmans.) 2*s.*
"Old Testament History." Vol. I. From Abraham to Joshua. By Rev. T. Nicklin. 171 pp. (Black.) 3*s.*
"Israel and Assyria in the Time of Isaiah." By W. G. Towers. 153 pp. (Marshall Bros.) 3*s.* 6*d.*
"Handbook to the Gospel according to S. John, for the Use of Teachers and Students." By Canon Newbolt. 186 pp. (Rivingtons.) 2*s.* 6*d.* net.
"The Gospel of St. Luke in West-Saxon, edited from the MSS." By Prof. J. W. Bright (of Johns Hopkins University). 143 pp. (Heath.) 2*s.* 6*d.* net.
"*A Child's Life of Christ.*" By Mabel Dearmer. With illustrations by Eleanor Fortescue-Brickdale. 290 pp. (Methuen.) 6*s.*

ion of the Gospel of St. Luke in Anglo-
y perhaps take the place in the sixth form
' school that the Greek Testament fills
se of a classical sixth.
earmer's task was not an easy one:
gain the story of the Gospels is like
the lily or gilding refined gold. One
d faults, such as the alternation in the
ech of the modern "you" with the old-
thou," and the retention of the term
n" in our Lord's address to His mother.
the whole, the book is markedly success-
oids "journalese," it is free from tawdry
l embellishments, it is suited to enter in
doors. Of Miss Brickdale's illustrations
possible to speak too highly. They are
power and suggestion: the blood-red,
d spear that glitters up through the dark-
n below towards the King as he hangs
ph on the cross is a piece of speaking
that marks the highest artist. It is a
the reproduction of these pictures is not
as it should have been; the colours are
ys in perfect register.

HE CHRISTMAS VACATION UCATIONAL CONFERENCES.

y educational conferences are held annually
Christmas vacation that it is impossible to
for a full report of each of them. The following
f a few discussions of real interest to practical
supplemented by the abridgments printed in
t of this issue of certain of the addresses and by
tems of Interest," will serve to direct the atten-
aders to recent expressions of opinion on the
important subjects of the school curriculum.

Physical Education.

ortance of securing the healthy development of
n any scheme of education was recognised by
sers of both the London County Council and
of England conferences. In London a whole
iven to the discussion of organised games for
oys.
mphry Ward presided at the morning meeting
with girls' games, and said she was seized with
comic sense of the difference between this
and the last, and her complete incapacity to
discussion so far as any personal experience
ned. From the eighth to the seventeenth year
she was educated at a boarding school, but at
the question of organised games for girls was
ast to which her teacher or herself applied her
remembered a rapturous game called "tig"
in Shropshire school. Her afternoon exercise
t the two-and-two parade, the long row of
schoolgirls which George Meredith describes as
ay dead march called a walk," when one was
to shove the legs along, ironically naming it
ercise." In the later sixties came the croquet
ten years later the new ideas were spreading
high school at Oxford had even then a cricket
here she had looked on in wonder at her younger
he provision of organised games for girls is now
a settled and accepted thing. Some people
ay wonder whether our girls are not in danger
now of some of the excesses which are scolded in boys, whether girls' minds may not be too much set on games, and whether some of these games may not bring physical risk rather than physical gain. Concerted play disciplines those who take part in it. It curbs the domineering child, gives courage to the timid and self-conscious, and may be made a real school of manners and of grace. Mrs. Ward would like to see the town public authorities take the child's whole day into its consideration, play time and school time alike, and provide for both.

Miss Lawrence followed with a paper on organised games for secondary-school girls, the greater part of which we are able, with her permission, to print (p. 66).

Mrs. Kimmins, organiser of the Guilds of Play, also read a paper on the subject, and gave some account of the work done at the Bermondsey University Settlement. It has been found that simple dances arranged for children have a most beneficial effect from every point of view. The dancing of the varied forms of the minuet is in itself an education, giving self-control, grace of movement, courtesy of manner, and a hundred other things. Morris dances are the best for school purposes; there is so much action in them, and the attention of the child is maintained throughout.

Sir Lauder Brunton presided at the afternoon session, which discussed games for boys. In opening the discussion, he referred to the influence of hope and joy in enabling people to resist disease and in increasing the power of the mind. Joy and pleasure stimulate the muscles, and have also a powerful effect on the circulation. The first thing to remember is that physical exercises set for boys should be such as afford them pleasure. Games of ball are among the best physical exercises. Physical training is no good, however, if it stops at movements adapted to the training of the muscles. Sir Lauder Brunton would give boys a complete training in the art of rifle shooting. The playgrounds of this country, if properly utilised, would, he said, enable us to raise up a race who would be able to defend hearth and home against any invader. The less the teacher meddles with boys at their games the better.

Messrs. W. Corsie and F. Elton read papers, and the discussion was opened by Mr. T. Chesterton.

The physical condition of the poorer school children was the subject at one of the meetings of the North of England conference. The Bishop of Ripon, who presided, said we have been a little led astray in our educational enthusiasm, and have forgotten the primary condition of education—the preparation of the soil in which the seed is to be sown. Experts say that by overlooking the physical condition of children we have, quite unconsciously, been submitting them to overstrain, with the consequence of frequently throwing the physical system entirely out of gear. A careful physical inspection of the children is absolutely necessary, especially with regard to eyesight and hearing.

Dr. Arkle, of Liverpool, described how, in his own investigations of the physical condition of poor children his method has been to compare age for age the children of the council schools with the children of the secondary schools, the latter having, presumably, an opportunity of developing under the most favourable conditions. The result is to show quite an appreciable deterioration in the children even in the best council schools, and an alarming degeneracy amongst the poorest, and to prove, also, that underfeeding and neglect are the cause. The deterioration appears to grow greater as life progresses.

Yet, medically considered, the council-school children are with few exceptions what one would describe as a good, straight lot. They are dwarfed, maybe, in the poorer schools and starved, but there are very few cases of deformity or skin diseases, curvature of the spine, or crooked limbs; and as such they give one the impression that with better chances they would make a fine race of men. Over and over again Dr. Arkle has noted cases of children without an ounce of superfluous flesh upon them, with skins harsh and rough, a rapid pulse, and nerves ever on the strain, and yet with an expression of the most lively intelligence. But it is the eager intelligence of the hunted animal, with every faculty strained to obtain food; and it is from this class that the ranks of pilferers and sneak-thieves come. On the other hand, with children of a more lymphatic temperament, starvation seems to produce creatures much more like automata. They are in a condition of semi-torpor, unable to concentrate their attention on anything, and taking no notice of their surroundings if left alone.

Dr. Ralph Crowley, of Bradford, told how he has compared the children in the elementary schools in the best localities with those in the poorest in his city, and declared that he has found amongst the latter a very large proportion of children suffering from underfeeding. One of the most important facts is the serious deficiency in the children's diets of proteid and of fat. The percentage of children who are below the average in mental capacity is more than twice as great among those of bad as among those of good nutrition. Of the children of exceptional intelligence, there are 62·7 per cent. of good nutrition, 35·6 per cent. below normal nutrition, and 1·7 per cent. of poor or very poor nutrition; while of the children who are exceptionally dull there are 24·9 per cent. of good nutrition, 39·5 per cent. below normal nutrition, and 35·6 per cent. of poor or very poor nutrition.

THE TEACHING OF MODERN LANGUAGES.

The subject of the first day's meeting of the London conference was the teaching of modern languages. Mr. L. C. von Glehn delivered an address on "The Direct Method of Teaching Modern Languages," in the course of which he urged that the essential condition of acquiring a language is to acquire that sense for it, that *Sprachgefühl*, which in every language is far more important than grammar. The pupil must, he said, act, suffer, and perceive in the foreign language—that is to say, he must be made to repeat the foreign expressions for what he does, suffers, and perceives. It is for the teacher so to select and systematise these translations of experience that the pupil learns at the same time the most common facts of grammar and the most useful vocabulary provided by each sphere or category of "experience." The aim of the direct method, he explained, is to move forward in and through the foreign language so far as it is possible without constant comparison with the mother tongue, such comparison being, as a rule, detrimental to all important direct association. One of the great advantages of the direct method is that it compels the teacher to foster in his pupils the habit of distinguishing between what they know and what they do not know; it is a discipline in intellectual sincerity.

Mr. D. Lloyd Savory dealt with "The Application of Phonetics to Modern Languages." He claimed for the application of the phonetic system to the teaching of modern languages that it gives independence. It makes the pupils to a large extent independent of residence abroad; and even if the learner intends to g country where the language is spoken, it is advantage to him to start with a thorough kno the sounds in which he has to practise himself. advantage of the phonetic system is that it m pupil independent of the native teacher. The phonetics is a means of education, containing, a all the elements of real education.

At the annual conference of the Modern Association several aspects of the work of language masters were considered. Mr. A. A. S opened a debate on "Modern Languages in Civ Examinations," in which he urged that the exa should be conducted so as to give boys the getting an insight into the language and some ma It would be much better to confine attentior language than to continue the present system. gested that the association should place on record tion that all public examinations should encou efforts made by modern language teachers to e well as to instruct.

Mr. Albert G. Latham read a paper on " Abandon Translation?" He said the fate of t as a medium of instruction in languages is un one of the chief questions at issue at the present As for translation from the foreign language, he keep that more or less in its traditional form, more careful graduation of the texts and more upon an idiomatic rendering. The texts should, always be slightly in advance of the learner's att and should necessitate an intelligent use of the d for, in spite of weighty opinion to the contrary thought the older children should learn the us dictionary at school. The teacher should be on to help the pupil to an appreciation of each wo own language, and according as it is prosaic archaic, humorous, or slang, should suggest ar word the use of which is analogous. The judi of translation is not only no bar to the requisi living knowledge of the language, but it is the st to an accurate knowledge of it; and Mr. Latham it is to be further recommended by advantages of It is also an admirable means of developing and st ing the command of English.

Prof. Rippmann introduced the subject of " Reform and Spelling Reform." He said that the reform is in the air, and amongst other reform of reform in spelling and in speech. The idea must be a perfect instrument for communicating It must be clear and pleasing in verbal ex and uttered in such a way that the manner d does not distract attention from the matter. W strive after a manner of speech which possesses no characteristics for the majority of the educated is no standard of speech in the North or in th States of America. The only standard of speech any chance of recognising is that of the educate in the South, obviously not the speech of the lowe nor the London dialects, nor the speech of the ari but the upper section of the middle class. Here, t are distinctions—public speaking or declaiming an everyday talk. The speech should be easily inte one that limits the possibilities of simplification is pleasant, or at least not jarring, to hear. reform lies in the direction of making the standa generally acceptable. This will best be done by in the young—teaching them their language on ratio

the disadvantages of phonetic spelling, Prof. emarked it is said that it looks queer, and gy is obscured; but etymology is a secondary . How many words can the man in the street ir source? In reading and speaking does he ed to it? If phonetic spelling were adopted, tudent of etymology be inconvenienced? It s well be said that because our spelling is not cer, Chaucer's English is unintelligible to us. nual conference of the Association of Head Dr. J. C. O'Connor gave an address on He said there are 50,000 students of Esperanto try, and that the total grammatical differences eranto and English can be put on half a page ry reading-book.

Instruction in Classics.

eting of the Headmasters' Conference, Mr. F. ved a resolution, which was subsequently That this conference is of opinion that the Latin pronunciation recommended by the ociation should be adopted by all schools re- the conference with as little delay as possible." he resolution, he said we are at present in suffering from a want of uniformity in the he classics. It may seem a small matter how uage is pronounced, but it is of importance hall not be brought up to the age of fourteen nd of pronunciation, and after that be taught er. A system of this kind lends force to the at Latin is dealt with really as a dead rather ing language. The time has come when there iiformity of system in the education of boys of nine onwards, and not only from the time leave the public schools. He asked for rst in the interest of the preparatory-school next in the interest of the stupid boy.

Dr. Upcott moved: "That, in the interests l education of young boys, it is advisable that Greek should be postponed to the age of urteen, and that Greek should not be a sub- trance examination in schools represented on e." The resolution was eventually passed. reasons for proposing this resolution were, the system of teaching four languages con- young boys is bad in principle for all boys— average, or clever—inasmuch as, in the first ipates the energy and confuses the mind of t a period when clearness and concentration necessary; in the second place, it tends to ly education of a boy one-sided, giving undue o languages and crowding out proper early such subjects as history, geography, simple atural science, and so on; thirdly, it tends to the systematic study of English and English d lastly, and perhaps mainly, it is highly in a day when economy of time is of para- ance. He said that there is a growing dis- ith the methods of public-school training and desire to see a better, a more discriminating subjects, together with greater economy of ly during the early years of boyhood.

The Teaching of Literature.

meeting of the London County Council con- considered the question of the teaching of in schools, *the Hon. W. N. Bruce*, C.B., stated that when the Board of Education turned its attention seriously to secondary schools several years ago it found the subject of Shakespeare suffering from great neglect. Since then it has been doing its best, with the co-operation of the teachers and the school authorities, to secure (1) that the teaching of English shall have a fair proportion of time given to it in the curricula of school studies; (2) that the instruction shall be given in a continuous and progressive course, skilfully graduated to the age and capabilities of the pupils; and (3) that it shall be given on a method and in a spirit which will foster a lasting love of good literature in the children's minds.

Prof. I. Gollancz followed with an address on the teaching of Shakespeare in schools. We have in Shakespeare, he said, the greatest mind of England speaking to us in a form that is especially attractive from the standpoint of youth and childhood—namely, the dramatic form. He urged that the child should be taught to take an interest in Shakespeare in its earliest days, before it can read or write. He would start in the lowest form of the elementary schools with a story, carefully told, of one of Shakespeare's plays which is likely to interest the children. The boy or girl of ten could not be expected to master the whole of a play; the child should be so taught as to learn to care for the great and important parts of a play, and to recognise a complete work. It will be a good thing, too, if the Shakespeare put into the hands of the child has a *minimum* of notes. One of the first and important points in dealing with Shakespeare is that the children should learn by heart passages from the plays. The kernel of the whole matter is the question of repetition. Prof. Gollancz would like to see an annual festival in all schools for the enactment of Shakespeare's plays.

The Development of Character.

At the final meeting of the Association of Head Teachers an address was given by Prof. Muirhead on moral and religious instruction. He said we have come to hold that no education that does not fundamentally affect and develop character is worth anything at all. What is important is not so much what we teach children, what faculties we seek to develop in them, but the use that the children are going to make of the instruction and the ideals with which they go forth in life. Some advocate the unconscious or indirect way of developing character; others hold that it must be distinctly conscious, and that the studies of the school should be arranged definitely with the view of the development of character; and others, again, advocate direct conscious, systematic, moral teaching. Prof. Muirhead emphasised the importance of the ethical and intellectual environment of the children, or what has been termed the "serenity of the work," its blithesomeness; for as a countryman of his had said: "The end of moral and religious instruction is to put us in good heart about life." While education must be rooted in unconscious imitation, it must also be nourished by conscious admiration. Hence the importance of selecting those studies which deal especially with what is admirable in human life. The main thing is not that there shall be direct ethical instruction, but that all instruction shall be ethical. It is this that people mean when they talk of "atmosphere." Any religious atmosphere is a good thing, and without it there will be little else but a stagnant vapour.

Technical Education.

The development of technical education in a large manufacturing centre was one of the chief subjects for discussion at the North of England conference. Principal

Reynolds and Prof. G. F. Charnock read papers dealing with the subject from different points of view.

Mr. Reynolds said that before we can even begin to discuss the subject of the development of technical education in a great industrial centre, we must first consider whether the provision for general education is liberal and effective. Unless this be the case, no subsequent technical education or training of any real value can be given. Even the humblest workers in the field of industry need the basis of intelligent training; however elementary that may be, they will be the better workers and the better citizens. It is fundamental, if this is to be done, that no child, on any pretence or excuse, shall be allowed to leave school until he has reached fourteen years of age. The number of scholars of that age in our elementary schools is but a small fraction of what it might and ought to be. Labour and half-time certificates, especially in Lancashire, are granted on the flimsiest pretext of knowledge, that the children may get to work; but it would be vastly better for the nation, where family necessities require it, that these children be granted maintenance scholarships until they reach the standard leaving age of fourteen.

He proceeded to put forward certain practical suggestions, which must be borne in mind in developing systems of technical education in our large towns. First, the need for the definite extension of the age limit in higher elementary schools to sixteen years. There is an advantage in selecting in each suitable locality of a town one of the elementary schools, and in giving it an extended curriculum, staffing and equipping it accordingly, such school to be fed from the elementary department of the school and from neighbouring elementary schools, and supported by a scheme of scholarships. Secondly, the enactment of a law forbidding the employment of young people in working overtime until they have reached their eighteenth year, so as to give full opportunity for attendance at evening classes. Thirdly, the establishment of one-day courses of specialised instruction in the technical school or college, now successfully carried on in certain centres, for selected apprentices in engineering and other similar important industries.

HEALTH IN SCHOOLS.

At a conference of the Teachers' Guild, opened on January 11th, the subject of health in schools was discussed. Miss Alice Ravenhill opened a discussion on "The Need and Opportunity for Systematic Observations and Records in English Schools." British investigations, she said, have so far covered but a very limited portion of the wide area which awaits intelligent survey. They are concerned chiefly with the physique rather than with the intellectual and moral growth of children, and lay more stress upon the conditions which multiply the abnormal than upon those which produce the normal, with which, after all, the teacher is primarily concerned. Children suffer to-day from the bad air in overcrowded or ill-ventilated schools; their food is often injudicious and unsuitable, while there is a serious deficiency of sleep among juveniles of all ages in all classes of society. Training in self-control is often wanting, and false emotionalism or excitement leads to exhaustion and permits a reckless waste of nervous energy and vigour. The yoke of competitive examinations is reflected in a perpetuation of cramming, which still, in some cases, stifles natural intellectual hunger; and morals are left to take care of themselves at ages when temptation is most active.

Dr. C. J. Thomas, assistant medical officer to the L.C.C. Education Committee, observed that a larg of the crippling defect of a preventable nature i apparent upon even a casual inspection of scho a careful survey invariably brings to light mu which otherwise would be unsuspected. Some o fects are due to faulty hygienics of education; defects not primarily due to educational methods, detectable during school life and are capable of early stages by timely advice to parents. It is much to say that the yearly economic loss to th due to conditions arising from teeth neglected cared for during childhood is considerably gre the whole amount of the education grant.

Miss Ravenhill also read a paper on "Suggesti the Teaching of the Principles of Hygiene." that care must be taken to arouse interest in t branches of hygiene, and in all cases the duties of hygiene must be stringently impressed. With bo should be laid on the hygiene of occupation, w girls the domestic side must necessarily take a p position. It is advisable to exclude so far as pathological details, to keep the ideal of a healt physical life as a basis for success and happines the foreground, and to impress facts by simple l experiments, by actual observation, and by demon

THE USE AND ABUSE OF PU EXAMINATIONS.[1]

I.

By S. A. BURSTALL, M.A.

Headmistress, High School for Girls, Manchester of the City of Manchester Education Comm

THE system of public examinations, as we ha it in England, is peculiar to this country. It own manufacture, and has been for the past f one of the most characteristic features of our It has been developed in every grade, university, s primary; characteristically English is it to give degrees on examination only, as at the Univ London, or by elaborate competition like the C tripos, which has given us the senior wrangler. and other public examinations from 1858 have large part—too large a part many of us thinl secondary schools, and our elementary education was all but ruined for a generation through t system of payment by results. The countries v most famous for education—Germany, Switzer United States—have no such systems of examinat presumption is therefore against us; and we ha fifty years of recent experience from which to arguments in attack or defence.

To-day there is a reaction; payment by result appeared; the best secondary schools minimi examinations; and our northern universities stan University of Manchester has stood throughout ence, for the ancient mediæval principle that the judgment and the student's record should be elements in the award of university degrees. T subject, in short, is opportune to-day; and its fa influence, its limits, its use and abuse, are indee of our consideration.

[1] Abridged from papers read at the North of England Edu ference, Bradford, January 4th, 1907.

npting to analyse these, it may be wise to
e of examination we have to consider. It
eristic English type we know so well—ex-
ident of the teacher and of the examinee's
udy, and largely written. The use, the
internal examinations, weekly, monthly,
onal, *by the teachers themselves*, to test the
ss, knowledge, diligence, understanding, is
to need neither argument nor discussion.
, are the uses of the other kind, the public
xaminations?
e shall consider is that which historically
test the teacher, to raise the standard, to
ient schools. It was invented, as has been
regular State organisation, aid, or control
to public opinion in the mid-Victorian era,
achers had not a professional status. It was
sary then, and it certainly did good. It may
essary when, for special reasons, teachers
ted, or when any kind of State aid, inspec-
ion, or control is impossible through political
al conditions. The Oxford and Cambridge
enior locals undoubtedly had their uses,
irls' education; and the founders of the girls'
ry schools, Frances Mary Buss and Dorothea
supported and highly valued them in the
That stage has passed; public secondary
ger need such aids, such tests, though private
With greater knowledge of what education
elastic State organisation, wise inspection,
ral grants, and a register of efficient schools
l authorities—above all, with better teachers
r professional consciousness—this need, this
me obsolete. Primary teachers have been
bondage of payment by results. Their own
ualification may be raised, or they may be
nine their own pupils elaborately. Whatever
necessary for efficiency of their schools, it
that its yoke will ever be bound on them

aminations are a test of the pupil's fitness to
ething else. Such are those for the medical
eachers' diplomas or certificates, ordination
&c., which qualify for the exercise of pro-
versity matriculation or pupil teachers'
inations, and the like. This use will always
history of educational institutions tells us
l of test of the individual pupil who passes
is necessary. It tells us also what not to
examination must not be limited to paper
en hour on a given day. The examination
he teaching, not the teacher the examina-
the teacher must have some share in setting
A moderator, or external examiner, is, of
d to select questions from those set by the
ew ones, bring in new ideas, and keep up
The plan works easily if the examinations
l; that is, not the same for the whole of
tralisation of examinations is bad; neither
rd, nor Cambridge should examine all
h should have an area, as the Joint Matricu-
is in the North.
use of examinations as stimulus to a pupil.
xperience of this has been only in secondary
ere such a use is often real and valuable.
erent pupils do wake up and work at the
pass or honours in a public competition.
Will this use continue? Probably, yes; at least for English boys and girls in the next generation or so.

There is, on the other hand, a serious abuse of this stimulant, as of stimulants of another kind. A pupil learns to work only for examination, to care nothing for knowledge, but only for success, and to form an absolutely wrong idea of education. In the writer's experience in London this has happened again and again. Some pupils, too, are thus worn out physically and mentally before their life work begins. Such a danger may be met in part by reducing the number of examinations; once in a pupil's school career is enough, and it should be at the end, whether at fourteen, sixteen, or eighteen years of age.

Fourthly, examinations are most useful as a means of awarding posts in the service of the State or of distributing public money in scholarships and exhibitions. The Home and Indian Civil Service examinations and those for the Army have, on the whole, worked well. Our scholarship system is less generally approved, especially that for the great public schools, for college scholarships, and for scholarships from public elementary schools. Doubtless there are errors in selection and method, but on the whole the use of the system is greater than the abuse. A well-conducted examination does pick out the boy or girl who is worth the expenditure of public money, and does do something to exclude the unworthy. This aim is the more perfectly achieved if the examination is a test of faculty rather than of information acquired. English essays, translation of "unseens" in classics or modern languages, problem papers in mathematical subjects, are examples of such tests. The examining should be carefully done, should include oral as well as written work, and in many cases credit should be given for physical qualifications. A mere aggregate of marks should not be final in the award.

It is sometimes said that the examination system in the Indian Civil Service secures men who are clever and well behaved, but who do not possess the instinct of ruling; but probably no system would uniformly select suitable candidates only; a few unfit will get in whatever system be adopted. To this fourth use there are few abuses.

As regards the first, second, and third uses, namely, the test of teaching, the test of the pupil's fitness, and the stimulus, the abuse of public examinations has been in the past a serious injury to education in England, and the resulting evils in some quarters still persist. We all know how payment by results has injured elementary education; the evil it has done lives after it in mechanical methods, and the absence, too often, of the true idea of teaching and of learning. External examinations have injured secondary schools through the restraint they have placed on the teacher and through the enforced rigidity of the curriculum. Neither head nor assistant was free to try new methods, new plans, for the stratification and correlation of subjects. The pupils were limited and restrained, too, and their instinct of discovery and investigation replaced by the satiety which comes of cram.

External examinations are most harmful when they come half-way through a pupil's course of study; "junior" and "preliminary" examinations at twelve and fifteen years of age have been a sign of the weakness of English secondary education. Again, there has been a temptation to some authorities, even to universities, to examine for the sake of examining and for the monetary profit brought.

Furthermore, one of the most injurious results of the competitive-examination system has been that too often the wrong type of pupil has been brought forward—the brain that can assimilate and reproduce, not originate and think.

Examinations do often select able men—but not the ablest. The highest type does not take the highest place in such a contest: witness the Cambridge Mathematical Tripos lists. There are, indeed, folk who can pass examinations and do nothing else. Our English system, in some respects, has been on wrong lines, and has brought forward in the past the wrong kind of ability, a fact which has led the average Englishman to disbelieve in the good of education for practical life.

The abuse of examinations leads to another evil—the distortion of the student's ideas and of the notions of the general public. The student feels the same impulse and works for success, for the sake of getting ahead of the other men. Research, investigation, the increase of knowledge, the conquest of Nature by the application of scientific method—these have been set aside for what would pay in an examination. Thus it is that until recently, when there has been a reaction against the fetish, German universities have done much more in research than English ones. Our secondary schools (alas!) are still measured by their success in public examinations. Shall we ever see the time when on a prize day a headmaster or headmistress will boast rather of the additions to learning made by the investigations and writings of members of the staff, as boast the yearly reports of the German gymnasia? The teacher who is still a student, who is still thinking and learning, is far more likely to make his pupils think and learn than is the poor pedagogue whose horizon is limited by the cram book and the question paper.

After all said and done, after the experience of the past and the lessons of other countries, the conclusion as to external examinations may be summed up in an old phrase: "A good servant, but a bad master." Such are examinations—useful, but dangerous. We are not likely to get rid of them, or to find anything else that will do their work. Like opium and strychnine, belladonna and arsenic, they are deadly poisons or beneficent drugs, according as they are used or abused.

II.

By J. E. BARTON, M.A.

Headmaster of the Crypt Grammar School, Gloucester.

A GENERATION ago it was assumed that the prime object of education was knowledge. Enthusiasm for science, in the most literal and bald sense of the word, was at flood tide. It was thought that the two most desirable qualities in a schoolboy were a thirst for information and a facility in reproducing it. Hence the enormous spread of public examinations. At the present moment we are enjoying a reaction from the somewhat uncritical worship of mere knowledge which marked the strenuous Victorian age.

Every really modern teacher, in his heart, is sometimes sceptical about the educational value, for many of his boys, of the particular thing he may be teaching at a particular moment. But nobody doubts the value of the process of learning as a whole if it is carried on in a vivacious, alert, and spontaneous fashion. A sympathetic inspector can soon gauge how far this valuable process is going on. Just as every school has its peculiar tone, so every class has a spirit, impalpable but recognisable, which emanates somehow from *these* boys when they confront *this* teacher, and depends comparatively little on what subject is being taught. It is just this spirit—incomparably the most important thing in education—which no public examination paper can capture. The youngest boy has a personality of his own, but the expression of personality by means of ink and paper is an incredibly difficult art. Sor greatest personalities have never achieved it. H can we expect the average young boy, confronte set of printed questions, to reveal in his writte any genuine part of himself? We know that in fact average boys really do differ, and differ en in their attitude to a subject like history, in th they feel in it and the extent to which it enliv minds. Two hours with the class itself would another story. These average boys would then e individuals—more or less inarticulate individuals I but individuals none the less. Every teacher wh young boys in his charge for a whole year, and read an outside examiner's report upon their aware how curiously arbitrary such reports are a One reads them with an odd sensation, a feeling writer has not touched flesh and blood at all, t dealing with phantom boys and phantom scho In short, if the object of a public examination seriously the genuine education of the average y one can only say that it misses fire. It is true examination paper you like will kill a few dunces is no great achievement.

It is often urged that public examinations ar rate good for the teacher. It is said they pr with a definite line to follow, apply a competitiv his efforts, and make him feel that he had better and industrious or else he will be found out. I have little sympathy with that point of view fr teachers are regarded as a slippery class, who n kept all the time under a sort of police supervis sort of teaching which is goaded on the one h cramped on the other, by terror of bad examinati is not likely to have much individuality or true value. And even if the incitement be only a po it is not without danger. In so far as a public tion lends itself to mere competition between sch school sending up a carefully picked and train of gladiators, the effect on education, properly is absolutely mischievous. The teacher under t ditions devotes his efforts, not to understanding of his boys, but to anticipating the mind of the e

There is something peculiarly vicious in th selecting a handful of boys for spoon diet while t companions, not candidates for the examination the odd crumbs. Unless that most important t corporate form life, is to be sacrificed, boys shou up for public examinations in solid blocks, or at all. Possibly, like other commercial enterp public examination has to keep its hold on the a system of prize coupons.

Examiners will urge that they, too, must live- ment to which there is no reply except the calle Talleyrand to a vagrant who used it: "I do n necessity." If public examinations for junior necessary at all, the results should be limite opinion, to simple pass or failure, to a simple p test of adequacy or inadequacy in the standar reached prior to the broader and more serious w is to follow.

A word on higher public examinations. At p the top forms of good schools, two objects have t in view. It is necessary, first, that the avera boy when he leaves school should carry with definite hall-mark of a reasonable all-round Secondly, it is necessary that boys of talent wh the university should win scholarships to take th

al stranger, unacquainted with the inner work-
ols, would imagine that these two objects, each
dable one, naturally stand or fall together; that
out into life of well-educated average lads, and
g up to the university of well-trained scholarly
d merely be two aspects of one homogeneous
Unhappily, this simple and rational idea is
ntradicted by the present state of things. The
er, for example, who is trying to equip his boys
for the standard expected at the higher certifi-
ination, and at the same time, with the same
s, to provide a nursery of future Oxford and
scholars, already finds himself in a tight place,
year the place becomes tighter. Every year the
examinations for Oxford and Cambridge
s demand a higher degree of specialism in one
. And every year the papers of the higher
demand a higher degree of specialism in all
s. The teacher thus finds himself distracted
e rival attentions of the upper and the nether
If anybody will carefully compare the higher
papers of to-day with the papers of six or seven
he will realise what is meant. One must also
the governing idea of the examiner is a good
distinctly a good idea to encourage independent
But independent thought, in segments of fifteen
time, is a feat to which no wholesome school-
. The question flusters him; he clutches vaguely
piece of knowledge which strikes him as dimly
nd writes even that inaccurately out of sheer
so the examination paper, the proposed end
to elicit his knowledge, to lure it forth, takes
ven that which he hath. Why despise a simple
is right, no doubt, to encourage the better kind
, the less mechanical and more suggestive kind.
ture to say that a simple paper, set more or
the scope of any industrious senior boy, is far
to bring out the better and more original type
than the kind of paper I have had the pre-
o criticise. Simple questions frighten nobody,
re always quite hard enough to answer really

to justify more precisely the title of this paper,
em it from the appearance of a mere philippic
miners, I now ask by way of summary: Have
inations any use at all, and how (incidentally)
buses be mitigated?

lready made the familiar suggestion that some
f a useful school career is necessary. This end,
body, so far as I know, approves, is well served
ic examination for upper boys, provided the
it is well recognised by the public, and is not
any elaborate and distracting classification of
The important question of a leaving certificate
outside our present scope, but at least one may
higher public examination, if it is to be really
hould be so framed as to provide a natural
on of a long and equable progress. It should
t, a natural consummation, and not what too
w is—an exhausting nightmare for a summer
al and desperate effort sustained only by the
t August is coming. A boy, if he has been a
should be able to meet his higher public ex-
cheerfully, and not be compelled to "fall on
(I may quote a contemporary poet)

ven as sobbing runners breast the tape."

ctor, who has *personal knowledge of the school*, and if the schoolmaster, who has personal knowledge of the boy, can somehow be concerned in this examination without destroying its value as an independent and comparative test, so much the better. I will not go so far as to say that the independent examiner should always be a teacher himself, but I certainly think he should have had experience as a teacher, and if possible some fairly recent experience.

Are public examinations, even for younger boys, altogether bad? I think not. A simple test of the kind I have advocated, a plain examination with no baubles, has one very strong point indeed to recommend it. It confronts the youngish boy with a new experience. It has the distinct moral value of teaching him to rise to an occasion. If the justice of an examiner is often a rough-and-ready justice, the justice which life itself metes out is invariably rough and ready, and it is good for weak and strong alike to pass through an ordeal of this kind. Parents also are concerned. The sensible parent may legitimately wish to assure himself by some definite external standard that his boy is doing reasonably well at school, and may reasonably be left there. The vain, fond parent may very usefully discover that other people, besides the form master, cannot share the parental opinion about the offspring's genius. We all know also the good, rather stolid kind of lad who wins a good place in his class by daily marks, but is hopelessly floored in a comprehensive written examination. With this type of boy one has enormous sympathy; I believe he often becomes the very best and most useful type of man; but even for this boy the shock of a public examination is more or less salutary. As for the boy who is really glib at examinations, the boy who possesses the instinctive knack of putting all his wares in the window, it goes without saying that he gains by practice. We may despise the art of showing more knowledge than one really has, of deftly concealing joints in one's harness, but nobody can deny that it is a gift worth cultivating. It implies adaptability to environment, as followers of Spencer might say, and it is in constant request among lawyers, journalists, statesmen, and schoolmasters.

On the whole, however, I should say that the present tendency—the tendency to discount the absolute value of public examinations, to use them as a means rather than as an end, and, above all, to substitute the stimulus of an expert and sympathetic personal inspection for that desolating anxiety about paper results which has so often made the teacher feel that in the midst of life he is in death—is a good tendency. We must cheerfully acknowledge that at present the Board of Education (if one may say so without irreverence) seems to be adopting a policy, in this matter of public examinations, which is a really enlightened policy, a policy inspired by a broad and generous consideration of what school education really means. Apart from all arguments that can be set down on paper, experience and instinct assure one that to live in an atmosphere of public examinations, to breathe their air perennially, to be for ever babbling of them and straining after them, is thoroughly debasing. If we are to have public examinations at all, they should be tests rather than competitions. They should serve also as school examinations, so far as possible, occurring naturally in the normal course of the school year. Above all, their use should be strictly subordinate to a clear view of our ultimate object in school life—to bring out the possibilities, not of some imaginary typical boy, but of the actual boys, every one a unique specimen in his way, with whom we have to deal.

ORGANISED GAMES FOR GIRLS.[1]

By M. LAWRENCE,

Headmistress of the Roedean School, Brighton.

To any who are devoting their lives to the bringing up and training of the young, it must have always been a very important problem satisfactorily to fill out and occupy the "out-of-lesson time." If six or seven out of the twenty-four hours are given to serious work, eleven to sleep and toilet, and two to meals, there still remain four or five hours which are unoccupied; and to the serious person who is anxious to train the good citizen the thought at once comes, shall those four or five hours daily in the young life be wasted and be allowed to take care of themselves, or shall they be utilised to the full?

The Anglo-Saxon race is, I believe, peculiar amongst other races in its very strong love for sport and outdoor life, and I suppose this is the reason that practical English *men* have long ago settled the difficult question by filling *boys'* leisure with elaborately organised games, which are made compulsory in all boarding schools and, I believe, in most day schools.

In pleading the cause of games for girls, I would put first and foremost as a reason in their favour *that they are, if rightly directed, a splendid means of developing character and bringing out what is best in children.* They teach the lessons so difficult to learn: that each one of them is only a part, and a small part, in the big game; that selfish play is bad form, unsportsmanlike; failure must be taken cheerfully and good-temperedly; and that it is of first importance that our opponents, as well as ourselves, shall have fair play. In the schoolroom our chief aim and object is to teach the child that she has an individuality—a thinking brain—to be developed; in the playground the child learns that she is one of a community, and that she must sink her individuality for the good of others. Education is incomplete unless both these lessons are learnt. The power of organisation and self-government, which is so readily learnt at games, becomes a very important factor in school life.

We all know that in a big school it is very important to secure a good tone. The only way to secure this good tone is to enlist the older girls on the side of law and order, for the mistresses to work through them and with them as friends.

In most large, well-conducted schools there is some system for giving the older, trusted girls authority over the younger part of the school. These girls often have a great deal of responsibility on them, and consequently have a great opportunity of developing character. They have to assume command, use tact and common sense daily, and yet learn to keep their places and not turn into little unnatural prigs. What better training can they have for their duties than the training of the cricket and hockey field, where everything must give way to the spirit of the game, and where one selfish and conceited person at once spoils the sport for all the others?

Another very good reason for advocating games for girls is that, quite apart from the actual good the girls get from them, they fill their leisure with an innocent and wholesome occupation, and leave very little time for gossiping and loafing and other undesirable things. The matches are a never-ending topic of conversation, certainly pa able to the discussion of dress and worse frivolities.

Lastly, one would advocate games for their sp physical training. I believe one half the diseases we p mortals are subject to are brought about by want exercise. Drilling, dancing, swimming, and walking all very good; but it is a well-known fact, endorsed all doctors, that free, pleasurable movements in the fr air, accompanied by interest or excitement, have a va of their own which no amount of drilling in a gymna can supply, and long walks are, I consider, positively for most girls. The long crocodile walk of the bo school which one used to see, but which, I am glad say, has almost died out, was a particular abomina The pace of all was necessarily regulated to suit slowest walker; and to a person who naturally w quickly I can hardly imagine a more tiresome a thoroughly wearying thing than to be forced to crawl d for an hour, probably the same identical walk, every day term after term. The process is soul-killing as well back-breaking.

I have often been told, on good authority, that when boys first go to school quite 70 per cent. of them posi dislike cricket, and only after years of compulsory p do they come to love it. This is, of course, the same girls. A good many will tell you they hate all g But it is precisely those girls who more particularly n their training: they are much too impressed with th own individuality; therefore it would be a very good thi if the games could be made compulsory in girls' school In a boarding school it is very easy to make game compulsory, but in a day school the difficulty seems t be very great. Quite apart from the fact that the sch is very often situated in the middle of a town, a the playing field must of necessity be separated from t building by a more or less long train journey, and th fitting in games with lessons becomes an almost impossi task; quite apart from that the games must involve a g deal of expense to the parent, who often is not o burdened with money; it is difficult then for the sch mistress to insist. I believe, however, that the maj of high schools in England have playing fields and a t or less flourishing games club, and that in schools w the headmistress is keen, often 75 per cent. of the belong to it. Many schools have a regular games mis trained at such a place as the Dartford Training C or the Anstey College, Birmingham, who also te drilling and dancing. The duties of this mistress a look after and help the girls to organise the games to be responsible for matters of health and to prevent girls from falling into silly excesses. It is also a thing to enlist the help and sympathy of the yo mistresses on the staff, as the games often develop a friendly spirit between mistress and pupil, and this very great help to the good tone of a school.

There is, however, one very important point I like to mention which has not received sufficient att hitherto. While nearly every school has its playing very few have near it any house or pavilion in there is a warmed room for girls to change in after games. Every girl after playing should be made t and change her stockings and the garment next skin before attempting the home journey. I imagine anything more dangerous than a girl's thoroughly hot, and perspiring freely, and then, w having changed, sitting, for an hour perhaps, in a dr railway carriage on a cold winter's day. This is, of

[1] Abridged from a paper read at the London County Council Conference of Teachers, January 4th, 1907.

of expense; but it is a very important
nd neglect of precaution here has done a
ing games into discredit. I should, there-
in any school in which I had anything to
mes altogether until these conditions had
ith.

ortant point to note is that often a slouchy
d carriage are brought about by games.
d girl, who perhaps has done little or no
suddenly takes to hockey and cricket and
every day at them, a figure which has
" games figure " is generally the result.
the back and loins are too weak to keep
when the body is habitually overtired.

of dealing with this difficulty is first of
girl who is not very strong overdo games
bad position, perhaps for 1½ hours every
cricket; and then the exercise of the
supplemented by scientific Swedish drill-
. I say Swedish, as I believe this is the
ht-out scientific system which exercises
es in a body systematically, and supple-
ements of the games by strengthening
do not come into play during the game.
a girl who is fond of bowling at cricket
shoulder developing unduly, she should do
ises for her left shoulder to keep herself
irl gets into a bad position while standing
should work the muscles of the loins or
rself strength to keep in a good position.
ective to a slouchy, ungraceful walk are
ercises on the balancing bar. A corrective
ungainly movements of the limbs which
ness are the graceful exercises taught in
ns. A girl who learns to dance a gliding
will soon learn to control her limbs.

and drilling lessons should be short, and,
, be repeated as often as the girl plays
t, so that every game which has a ten-
er rough and throw her limbs about in an
ner should be, as it were, counteracted
and systematic exercises of the drilling
ons. In this way almost perfect develop-
ecured.

nd dancing lessons, which if well given
indeed with girls, are best interspersed
ning lessons, while the best time of day
eems to be about half an hour after the
winter and in the late afternoon in
ideal, of course, to let each girl have a
ling or dancing lesson every day, and in
l this is easy enough; in a day school I
that is possible is to secure a game and
week.

nes themselves, the three best games for
ricket, hockey, and lacrosse. Football is
and should never be attempted by girls.
than lawn tennis, first of all because it
ed game, where each girl plays for her
r herself. Tennis has little educational
is is the much more expensive game of
quires more ground; and to give a large
ound for tennis would be a very expensive

e disadvantage, if overdone, of producing
the attitude of the girl playing hockey is
and body forward, while at lacrosse the
body is generally erect, and the head constantly thrown back when the player is in the attitude of throwing and catching.

Lacrosse is rather the better game of the two, inasmuch as it requires more skill, and therefore is more interesting in the long run than hockey. But the best plan seems to be to have lacrosse during the autumn term and hockey during the term after Christmas. This change is a good thing, as it often gives different girls a chance of coming to the front.

I should like to say here that mixed cricket and hockey, for obvious reasons, are very undesirable. No girl can ever play at all like a boy, and serious accidents are often the result of these mixed games. Cricket for girls, amongst girls, is a very good game.

As to the games dress, the most practical arrangement is that every girl should wear a loose, short dress during school hours in which she can with comfort drill, dance, and play games, and this dress should be made, if possible, without a waistband, to prevent all possibility of tightness. Nothing can be much more injurious than to take exercise with anything on so tight that lungs and heart have not full play.

In conclusion, I would make an earnest appeal to all interested in education to do what is in their power to promote physical culture in its widest sense amongst girls. There is still some opposition to overcome. For one thing, the financial difficulty looms large before us. The British parent is not fond of putting his hand in his pocket for anything he does not consider necessary; but I must say this for him: when he is convinced he generally agrees that what is worth having is worth paying for. Therefore it is for us teachers to convince people and to prove to them that these games do much to produce the young woman we all admire—tall, well-developed, with a good complexion, a healthy body, and a healthy mind; one who is sensible and capable, able to take her place in the world and grapple with its difficulties in a true and sportsmanlike spirit.

HISTORY AND CURRENT EVENTS.

We are just now having lessons in the science of government from Asia—Mr. Naoroji, the president of the Indian National Congress, has been expounding the principles and methods of the British constitution. Either by quotation or from his own observation he expounds thus: "Good government can never be a substitute for government by the people." "All legislation is in the hands of the representatives of the people." "The whole life of England every day is all agitation." "The British people did not wait for their Parliament till all the people were ready." There has lately happened among us "a revival of the old and honourable principles of the seventeenth century," "of the true old spirit and instinct of liberty in the hearts of the leading British statesmen," "of the spirit, instincts and traditions of liberty and Liberalism," "of the old British love of liberty and self-government." Is this true? and what meanings are to be attached to the words "people" and "liberty," either with reference to the British Isles or to India where these words were spoken? Without such definition, the exposition is vague and hollow.

We do not remember to have ever read a quainter item of news than the following: "A Chinese Imperial edict

has been issued raising Confucius to the same rank as Heaven and Earth, which are worshipped by the Emperor alone. It is believed that this edict has been promulgated in deference to the religious scruples of the Christian students in the Government colleges, who object to kotow, as required by immemorial custom, before the tablet of Confucius which is placed in all State colleges." There are several religions in China, and the Government of that country has pursued a policy of equal toleration for all. But such religions have been easy-going and mutually tolerant. Christianity, however, as in its beginning, is exclusive of other gods, and the Chinese Government has recognised this. But how quaintly, in our eyes. Confucius need not be worshipped; and this is effected by promoting him.

MR. BALFOUR, in a speech of criticism on the Government's method of conducting business, said: "Never before this Session had a Government depended so largely upon the amateur legislative efforts of unofficial members. Attempts to deal with great social problems or with great national interests in this way were to be deplored." This sentence would form an admirable text for a lesson on our methods of legislation. In the elementary histories of our youth, we were told that "if any member of the House of Commons thought of some new law, he proposed it in the House, and then," &c., &c., through the various stages of "readings," and the rest. We were never told that a private member had next to no chance of getting his proposal through, that it was only "Government" measures which had a chance of passing, and that this was effected by means of party loyalty, not by independent thinking and voting. But now a Government which adopts a "private" proposal on "great social problems or great national interests" is following a "deplorable" method. Are methods changing? or are our teachers knowing more?

A CONTINUOUS and reflecting study of mediæval history reveals the fact that the great desire of ordinary folk in those times was "good and firm government." Contrast the praise which the English chronicle gives to William I. and Henry I. with its blame of Stephen. The former are "good, no man durst do aught but right"; the latter is "soft," and anarchy and misery prevail. The House of Lancaster fell "for want of governance," and the Paston letters reveal a condition of private warfare on a small scale similar to the Wars of the Roses. Henry VII.'s legislation was directed to the suppression of "maintenance" and all its horrors. We have heard that in the United States of America government often fails before the brutal strength of trades unions, and the ordinary citizen suffers for "want of governance." And now in England a society called the "Labour Protection Association" announces that it is prepared "to provide its members with experienced men, who have served in the military, naval, or police forces, to counter-picket those who will use 'peaceful persuasion' towards non-union workmen."

MESSRS. F. E. BECKER AND CO. (Hatton Wall, London) have issued a patent flexible stencil, which enables students to produce in a few seconds perfectly symmetrical diagrams of the commoner forms of chemical apparatus. As a time-saving device it is excellent, and it may be recommended for the use of those students who are proficient in making good freehand sketches; but it is the very last appliance which should be entrusted to an incompetent draughtsman. The price of the stencil is sixpence.

ITEMS OF INTEREST.

GENERAL.

THE annual general meeting of the Headmasters' tion was held on January 10th and 11th. In th of his presidential address, the Rev. Dr. G. H. said we are confronted by alternative courses, uniformity and variety. The convenience of offic the framing of examination schemes, the enlarg education areas and the centralisation of control, holds, continually squeezing schools into identity of method, and outlook, and frowning upon individua ment and enterprise. The alternative course o better way, the president thinks, namely, fr recognise variety, not uniformity, as the ideal; to e diversities of programme in schools of differe different surroundings, and different constituents; equality of opportunity for schools of unusual eccentric, as well as schools of normal, aim; initiative in teachers, responsibility and independe boards of managers; to believe in the impor diversity, experiment, and even originality; to tole when necessary to abet, resistance to the canke amination, and the steam-roller of centralised ac tion.

NUMEROUS resolutions were adopted by the he at their annual meeting. One resolution express agreement with the amendment to Clause 25 of th tion Bill carried in the House of Lords, providin constitution of a registration council, representati teaching profession, and for a register which "; tain the names and addresses of all registered te alphabetical order in one column, together with of their registration, and such further statement a their attainments, training, and experience as th may from time to time determine that it is de set forth." It was subsequently resolved that stitute for attendance at a day or resident trainin work in a school recognised for the purpose, personal supervision of the headmaster, or a method under the control of the headmaster, n advantage be allowed. A general approval was the recommendations of Lord Roberts's deputatic military training of boys. It was unanimously that in the administration of secondary schools education authorities the utmost care should be avoid weakening the personal responsibility of he and that any attempt to encroach on the presen tration of such schools by their governing b headmasters should be resisted as being prejudic best interests of secondary education. A series mendations for a scholarship scheme was ado report of the Classical Association Committee o nunciation of Latin was approved; and a resolut declaring the remuneration of assistant-maste inadequate.

THE annual meeting of the Assistant-masters tion, which now has a membership of 1,650, w January 11th. In moving the adoption of the port, Mr. C. H. Greene, the retiring president, the Richmond (Yorks) case, which raises agai question whether headmasters are really suprem schools, declared that the Assistant-masters' is going to fight out this question to the bitte large guarantee fund has been raised, and, if the case will be carried to the House of Lords. tion was passed welcoming the growing feeling

ry-school teachers, as shown especially in of a Federal Council of Secondary-school nd looking forward with confidence to the the council of a sound national policy in ation. Approval was expressed of the salary ndary-school teachers adopted by the London , and of the fact that the Board of Educa- ntly published report lays so much stress nce of increasing the present inadequate teaching staffs. The reformed pronuncia- was also approved. Dr. H. F. Heath, ial reports and inquiries to the Board of ered an address on "The Place of Modern econdary Education."

hird annual meeting of the Incorporated Assistant-mistresses in Public Secondary ld on January 12th. A resolution having favour of the establishment of an educa- e for the discussion of purely educational Hodge, of Notting Hill High School, was t for the ensuing year. Miss Skeats, of , Chester, the retiring president, in the address, said the association has formed mmittees to report on the action of the ducation authorities, upon whose activity hose who serve in the schools now depends. f regulations for secondary schools by the ation is a matter for serious consideration. ciation takes some action it seems possible ng policy will become a fixed one. The he same amount of time must be given to ubjects during the whole of a child's school hat cannot commend itself to the practical e is great need, she continued, for the old a watching brief for the curriculum in t overcrowding and ill-advised regulations, far greater elasticity to meet the require- onditions. There is an increasing tendency the local authorities to consider the con- hich teachers are working in the schools, f the London County Council has impressed fact that in many areas the salaries are So long as a woman, after teaching for y find herself stranded in middle life with- of securing a competence, it can hardly be eacher's lot is a bright one. Miss C. L. paper on the teaching of English.

ral meeting of the English Association was ty College, London, on January 12th. The ssociation are: To afford opportunities for co-operation amongst all those interested guage and literature; to help to maintain of English, spoken and written; to pro- cognition of English as an essential element education; to discuss methods of teaching correlation of school and university work; nd facilitate advanced study in English literature. Mr. Sidney Lee presided, and rse of his address said the association whatever other subjects are taught lish ought to be taught thoroughly too. It iation to devise means of meeting difficul- of realising this aim. There is an infinite sociation to do, as is obvious to anyone the strides that English teaching and dge are making through all the grades of the educational system in America, in Germany, and, strangest of all, in France. It is a significant fact that at Harvard University, the oldest and one of the most active of American universities, there are twenty professors of English study in its various aspects, and at Oxford there is practically only one, and that the Oxford professor's pupils are for the most part not undergraduate members of the University, but women students, who, although they are not allowed any academic status at all, yet are ahead of their brothers in intelligent zeal for English study. In advanced English scholarship, America, Germany, and even France are outdoing England. Various resolutions determining the constitution of the association and the election of officers having been adopted, a successful meeting was brought to a close.

The annual meeting of the Geographical Association was held on January 4th. The annual report for 1906, which was adopted, shows that a steady increase in the number of members has taken place during the year. While fifty-nine members were lost by death or resignation, ninety new members were added to the roll, making the total membership 535. This total includes the members of the newly formed branch in South Africa. The members now include teachers of every grade, school inspectors, and others interested in geographical education, both at home and abroad. A special committee of the association has been appointed to co-operate with a committee of the recently formed Historical Association. This joint committee will discuss syllabuses in the combined subjects of geography and history, and will draw up suggestions for a historical atlas for schools. It is one of the privileges of members of the association that they can borrow at very low rates view slides, many of which cannot be obtained by the general public. A catalogue of these view slides has been prepared. It was published in the Summer Number of *The Geographical Teacher* for 1906. A special committee on lantern slides has been appointed, with Mr. G. W. Palmer, of Clifton College, as honorary secretary. This committee is considering the whole question of lantern slides, how far it is possible to prepare series illustrative of certain aspects of geography, as well as of various countries. As soon as the work is sufficiently advanced, plans will be published for the exchange and purchase of slides and photographic prints. Teachers of geography wishing to join the association should communicate with the honorary correspondence secretary, Mr. J. F. Unstead, Goldsmiths' College, London, S.E.

At the annual meeting of the Public School Science Masters' Association on January 12th, Sir Oliver Lodge spoke in favour of ambidextral training. He thinks there may be a tendency to overdo the quantitative side of science. In heat, practical work should be of this nature, but in electricity, measurement may well be postponed in favour of an early acquaintance with the simple phenomena. It is important to feed only the hungry, and not to stuff unwilling minds with information. He suggested that astronomy and physiology might be taken in schools, but the subjects should be dealt with, not in a technical manner, but rather through the biography of the discoverer. It is desirable, Sir Oliver Lodge said, to learn a science from both ends. In this way it is possible to utilise both the inductive and deductive sides of the subject. No educated man should be without a knowledge of the material universe; and though literature may be a better educational subject on the psychical side, it cannot give him this knowledge. Mr. Thwaites (Leicester) gave the

results of inquiries concerning the teaching of science in the public schools. It appears that about 60 per cent. of the boys take up science to some extent, and the average time allowed for the general course is four hours weekly. Mr. Leyland-Wilson (Charterhouse) explained that he teaches the atomic theory through physics. After a preliminary course of measuring and an elementary quantitative training in heat, the molecular idea is brought in to explain formation of crystals. Further work on the physical properties of air leads to a molecular explanation of the phenomena, and a similar opportunity occurs after constancy of composition and gaseous diffusion are dealt with. The atomic theory is only mentioned after a course of chemistry, which includes demonstration of multiple proportions and the laws of gaseous composition.

AT a meeting of the Girls' School Music Union, held on January 11th, the recent memorandum of the Board of Education concerning the teaching of music in secondary schools was discussed. Mr. Walter Ford opened the discussion, during which the utility of the memorandum was widely recognised.

THE Rev. Dr. William Haig-Brown, formerly headmaster of Charterhouse, died on January 11th at the age of eighty-three years. The great achievement of his headmastership, which lasted from 1863 to 1897, was the transference of the school from London to Godalming. As a correspondent in the *Times* has recorded, Dr. Haig-Brown "gave the school the full devotion of his best powers; he identified himself with it; he knew every fragment of its history, and was ever 'jealous'—to use his own favourite word—of its honour and reputation. When traditions were harmful or retarded progress, he was fearless and would have none of them; but of whatever was good in the past he was the most faithful and considerate of guardians."

A HOLIDAY course for foreigners will be carried on at the University of London next summer, and will, as in former years, be under the direction of Prof. Walter Rippmann. The full course will last from July 22nd to August 16th. The number of students will be limited; students should, therefore, make early application, which in every case should be written in English. Tickets will be allotted as applications are received. Distinguishing features of the course are the lectures treating of English literature, institutions, education, and art; the systematic study of English phonetics; the classes for conversation, reading, and choral singing, conducted by trained teachers; and the organisation of excursions to places of interest in and around London. Arrangements will not be made for students who are only beginning the study of English, and have no conversational knowledge of the language. Details of the lectures and classes, and forms of application for admission and for accommodation, may be obtained on or after May 1st. All communications referring to the holiday course should be addressed to the Registrar of the University Extension Board, University of London, South Kensington, London, S.W., and the words "Director of the Holiday Course" should be written in the top left corner of the envelope.

THE tenth of the series of articles on public-school education appearing in the *Times* deals with laboratories, and is by the Rev. T. Nicklin, of Rossall School. Mr. Nicklin says: "It would be hard to find a single public school of recognised position that has not a laboratory which, if not palatial, is yet adequately equipped for that end of science teaching that is regarded in En educationally best." We are told later that " public-school masters are not insensible to the d their old methods, yet see no sufficient evidence for radical change. For, while adhering to the Germa that lectures and intellectual teaching must be th of the work, the English public schools have from made considerable use of the laboratory; and to- use is on a larger scale and more thorough in c than ever before." Many science masters will n that the kind of science teaching in all public s that "regarded in England as educationally best. boys, lectures at all events should not be the s the work; and there is no reason why laboratory should not be highly intellectual. It would ha more satisfactory had Mr. Nicklin recognised m in his article the unique value of experimental w been able to report that this was the staple of th work in our great schools.

AN essay on discipline, by Mr. J. L. Paton, fo eleventh of the *Times* series of articles on pub education. We wish every schoolmaster and schoc in the country could be induced to study it. "The primary function is to teach the lesson and enf practice of obedience." "Respect for law does i by nature; it must, therefore, be superimposed o by habit; right habit is a matter of enforcemer matter of time." "No school is fitted to train government which does not train its juniors to o and its seniors, through its sixth-form system, to bility." "It is not right that the child's school li be all gall and wormwood, but neither is it rig should be all cakes and ale." Mr. Paton has t structive lessons to draw from American expe adopting fully the Rousseau theory of education, cludes this part of his article by reminding his "It is easier to relax the reins of discipline tha tighten them." We are sure no teacher will regr secured a copy of the *Times* for December 29th, having studied this essay.

THE twenty-third annual report of the Assoc University Women Teachers shows that the total ship is now 1,648, of whom 246 ordinary meml been elected during the past year, the greatest in record in any single year. Of this number, belong to Cambridge, twenty-two to Oxford, a eight to London University. Suitable applica teachers received during the year numbered 353. the association 168 appointments were made. T been considerable increase in the demand for teacl from public and private schools. Notwithstanding increase in membership, the demand for teachers times difficult to meet; and in certain direc shortage in the supply of experienced teachers v degree qualifications almost threatens to becon The demand for specialists continues; and the teachers of natural science, mathematics, and languages has proved very inadequate to meet the

THE Education Committee of the Manchester Cc is anxious to acquire a large Manchester estate l Platt Fields. It is proposed to erect a trainir with residential colleges for teachers, and to some land as playing fields. If the Corporatic sanction the scheme, the Government contributi cover 75 per cent. of the cost of the buildings required. This, it is reported, would mean a c

of about a farthing in the pound. If the Council ree to its purchase, negotiations will, we learn *Morning Post*, be commenced at an early date.

DNEY H. WELLS, principal of the Battersea Poly- has accepted the position of Director-General of created Department of Agriculture and Technical on for Egypt. Mr. Wells expects formally to on his new duties in October next.

Perse First Latin Book" by Mr. W. H. S. Jones, among the classical books named in the list of Notable School Books of 1906," published in our (p. 21), should have been called a "First Latin It is published by Messrs. Macmillan and Co., its price is 1s. 6d.

SCOTTISH.

nnual congress of the Educational Institute of was held this year in Dundee. The congress pro- was an exceedingly interesting and varied one, overloaded with items as is usually the case. The , Mr. John Mudie, gave a thoughtful address on Moral Purpose in Education." During the past n, he said, education has been chiefly concerned development of the intellect and the acquisition edge, while the moral and spiritual side of child s been fed on the crumbs that have fallen from e. The inevitable reaction has been a long time , but it is here at last, and pupils of the present n will be sent out to the battle of life much better in their whole nature than their immediate pre- have been. Principal Donaldson, St. Andrews y, attended to receive the honorary degree of and his appearance was made the occasion of ovation from the large audience to mark their ion of his life-long interest in education. The Principal, in a delightfully reminiscent speech, as in a large measure responsible for inaugurating of an annual congress. The original aim was o discuss educational matters, and to bring closer teachers of all grades throughout the country. t time a great gulf has become fixed between erent classes, and it should be the object of the to remedy this state of matters.

pearance on the congress platform of the Secretary land had special significance in view of the e (so it is hoped) of an Education Bill for Scot- r. Sinclair was naturally somewhat vague and in his remarks, but without any undue straining rds it may be taken for granted this Session will Education Bill dealing with the medical inspection ls, the feeding of school children, and the tenure erannuation of teachers. In regard to the last, tary for Scotland was as thoroughly sound as any advocate. "If we are to attract to this noble n men and women of the highest ability and we must look beyond the initial training to the conditions of service. To maintain the high that now exists, and to develop and improve upon ust ask ourselves whether the conditions of service ds tenure and superannuation do not admit of ent."

aving certificate examinations are announced to June 19th, 1907. In the accompanying circular, the ent strongly discourages the haphazard presenta- pupils in isolated subjects. Presentation in un- related subjects has all along been the weakness of these examinations, and it is satisfactory to find emphasis laid on presentation for definite forms of group certificates. The only condition necessary for the success of the new scheme is that there should be a fairly wide choice of groups. Insistence upon uniformity of groups for all would be a retrograde and fatal policy for secondary education. Teachers should note that the formal essay is in danger of being displaced from its position of honour in the English paper. The essay has fallen under suspicion, because it may be employed, not for the sake of expounding knowledge, but in order to display ability in writing. This is true of much essay writing; but that is the fault of the teacher or examiner who sets a theme outside the scope of the pupil's knowledge. If the subject is carefully selected, no better exercise than the essay can be got within the scope of the school curriculum.

THE Provision of Meals Bill has failed to find a place on the Statute so far as Scotland is concerned, largely owing to the determined opposition of Sir Henry Craik. His action in this respect has been severely criticised, but his attitude on this question was in complete harmony with the whole body of evidence given before the Select Committee by Scottish witnesses. Whatever view one may take of the question, it is pleasing in these days of weak-kneed legislation to find one standing resolutely to his opinions in the face of an overpowering majority, and in spite of much obloquy and misrepresentation.

THE schemes of the County and Burgh Committees in regard to bursaries are coming in for a good deal of adverse comment. Dr. Struthers, of the Education Department, has submitted that of the Edinburgh committee to some pointed criticism. He thinks the whole system of awarding bursaries should be recast in order that more regard may be had to the varying circumstances of different candidates. Bursaries he regards as maintenance allowances, which should vary with the financial position of the parents and the actual outlay (for travelling expenses or maintenance away from home) of the pupils. An examination of the various schemes for grants to junior students brings out the fact that much more is offered by burgh committees than by county committees. The students under the former have no travelling expenses or maintenance away from home, yet they are, as a rule, in receipt of larger bursaries than their fellows in the country. This is due to allocating the money for this purpose largely on the basis of population. By this method large and wealthy areas have a surfeit of funds, while the sparsely populated and poor districts are starved.

THE long-drawn-out negotiations between the provincial committees for the training of teachers and the training colleges for the transfer of their buildings and staff have at length been completed. The Church of Scotland receives £15,500 for its buildings in so far as they are not governed by an educational trust, and the United Free Church receives £10,000 as its share, and is relieved of a considerable debt upon the college buildings. The protracted pourparlers are said to be entirely due to the dilatoriness of the provincial committees. This lack of business dispatch, together with many other evidences of want of grip on their part, does not promise well for the success of the new training Minute. The appointment of the directors of studies will, it is hoped, give the much-needed initiative and driving power to the new committees.

THE general committee of the Educational Institute of Scotland, at a meeting specially convened to consider the

question of superannuation, unanimously agreed to press during the forthcoming Session for a scheme of superannuation on the following lines: (i) That school boards be empowered to grant pensions or retiring allowances to all teachers in their service, irrespective of whether such teachers have accepted the Superannuation Act or not. (ii) That the Scotch Education Department shall contribute from moneys accruing to Scotland sums equal to those granted by the recognised educational authority—the total pension from all sources not to exceed forty-sixtieths of the retiring salary. (iii) That the Act be retrospective in the case of teachers who have retired since 1899. (iv) That the assurance principle be included with the pension principle, so that a grant may be made to the dependents of teachers who die in service. It will be noted that this scheme is to be supplementary to the existing scheme. Scotland has always claimed to be in a different position from England as regards pension. Historically the right to pension was always possessed up to the passing of the Act of 1898. By the present scheme Scottish teachers are merely seeking the restoration of their use and wont position in regard to retiring allowances.

IRISH.

THE school grant paid by the Intermediate Board of Education again shows a decided decrease; and when we consider that everywhere educational grants throughout the kingdom show a marked inclination to rise, it is clearly time that the Government should take this matter in hand. Mr. Bryce, who came to us with the reputation of a great authority on secondary education, did absolutely nothing for the secondary education of Ireland, and this in face of the fact that in 1906 the scale of grants dropped to almost one-half of what it was in 1903. The unit in 1903, *i.e.*, the amount paid for a pass in the preparatory grade, was £5 17*s.*, in 1904 it was £5 9*s.*, in 1905 £3 16*s.*, and in 1906 £3 2*s.* The fall is due mainly to the drop in the income of the Board. The Board has made an innovation, too, for 1906 in the comparative rates of payment; hitherto the rate in the junior grade has been 1½ that in the preparatory grade for a pass, and 2¼ for a pass with honours; this year it is 2 for a pass and 3 for a pass with honours. As the proportion remains the same in the higher grades, this will benefit schools the pupils of which do not proceed beyond the junior-grade standard. Ought the Board to make these changes without explanation and without notice?

THE debate in the House of Commons last June, by which the proposed Rules for 1907 were rejected and which led to the Rules for 1906 being substituted owing to the impossibility of making the suggested changes in time, has had one salutary effect at least. The Rules and Programme of the Intermediate Board for 1908 have been published at an unprecedentedly early date, being issued at Christmas, while in former years they have never appeared until Easter. Whether the schools will be equally grateful for the other effects of the debate is very problematical. The point at issue was that Irish was not so favourably treated as other languages, *e.g.*, French. This grievance has now been remedied; but, at the same time, the Board has entirely altered the Rules for passing its examinations, and has made them more stringent. In the preparatory grade the conditions remain the same, except that mathematics is substituted for arithmetic or algebra; but in the higher grades the four courses are abolished, and the following are the compulsory subjects: A, English; B, two of the following languages: (1) Greek, (2) Latin, (3) French, (4) German, (5) Irish; C, mathematics; D, subject, which, except for those exempt, shall mental science.

THE changes go even deeper than appears at English, as a subject, is altogether changed. F subject of English literature and English comp each part of which 30 per cent. was necessary we have the language, literature, and history Britain and Ireland, in which 30 per cent. must as a whole, and in each grade a number of w commended merely "to be read"; what the na examination in this subject will be is not app requires explanation. A pass in two languages English is a startling change, and means a rais standard, especially as the programme in thes remains of the same kind. Again, by a pass matics is meant a pass, that is not less than 30 in each of the two papers in the preparatory grades (these are arithmetic and algebra, as subject, and geometry), and in the middle and se 30 per cent. in arithmetic and algebra and 30 in geometry or trigonometry. Girls may pass matics by obtaining 30 per cent. in one pape other hand, the amount of work prescribed in and algebra and geometry is considerably les previous years. Temporary provision is made in for students who have already passed with on only in any grade other than the preparatory.

OTHER important changes are as follows: tions are defined as of two classes, and the stated; the four courses for exhibitions and pri but students may enter for them all, and are to choose one beforehand; the basis upon whic be awarded is defined, starting from a standa be obtained from the marks of the highest The special prizes for Greek and German are the rules for music are modified, and an school is defined as an educational institution w classical or scientific education in any grade the preparatory.

AT the Dublin Education Society in Decemb lecture was delivered by Mr. A. Murray on "T of the Feeble-minded Child." The lecturer necessity for special schools for the feeble-m corollary to compulsory attendance, the ordinary school being unsuitable for them, and the impeding the work of the other children. A and Germany had preceded us in compulsory e they had preceded us in providing special specially trained teachers for the education of minded.

AN important lecture was delivered in the R Society in December, 1906, under the ausp Dublin Sanitary Association, by Dr. Robert on "Education from a Physiological Point of V Excellency the Countess of Aberdeen was p lecturer said the object of education is to d physically, mentally, and morally. The first the brain is to control physical vitality; hence tion to the rest of the body is much greater and childhood than in adult life. The evolution and development of the reasoning powers shoul be rather discouraged than stimulated in early of fresh air, good food, and abundance of sle lutely necessary for the growing child. All tea

life should be of a concrete nature. There
› anxiety, fear, hurry, or effort to grasp
ı. As these results followed inevitably from
xaminations, they should be absolutely con-
ildhood and early youth.

WELSH.

riculture be taught in the elementary rural
ı meeting of the Merioneth Education Com-
solution affirming the desirability has been
special reason for the resolution is that
nd mining are the chief, if not only, in-
he county. Of course, the objection that
iselves do not always know the subject was
But it was met by the answer that the
agriculture might then be taught by dictation
eading from standard works. If it was said
time for agriculture in the curriculum, the
was, again, that dictation and reading lessons
the difficulty. It was even argued that for
chools, *i.e.*, the intermediate schools, agri-
be more valuable than Latin or geometry.

tinctly stated that it was not proposed to
teacher to the staff. All that was suggested
the machinery at our disposal." What was
as that to propose to alter the conditions under
s are appointed to teach the present subjects
ılum, by the inclusion of a highly technical
griculture, would be to treat the whole body of
set of labourers who can be turned to any
ıg to the view taken of their work as un-
method of teaching agriculture by dictation
essons is almost as absurd as proposing to
l or swimming by dictation and reading
l If, as was suggested, it is hoped that
ould "take a lead in this matter," and
ıcation Committee is unanimous as to the
undertaking the inclusion of the subject, it
:d that the county will add more than "a
to the staff," viz., *just as many teachers*
ry to do the work adequately and effectively.

ıg of the Governors of the Barmouth County
er from the Central Welsh Board has been
the question of the teaching of Welsh. It
he languages taught in the school are Welsh,
ch, and Latin. One of the governors sug-
: simply a waste of time to include Latin
subjects "in these days." The headmaster
hat the Welsh Intermediate Education Act
m to include Latin; and, moreover, it is a
ect for those who wish to enter on a college
course, the schemes which are settled by
a security that subjects will be continued
)therwise it would seem to be probable that
lies, in their settlement of curricula, would
lligent teacher's lot not a "happy one."

in the examinations of the Central Welsh
Education Board, it is open to candidates to
uestions in Scripture in either Welsh or
ppears that only a small number accept the
› use Welsh, and the Board is sending
ıg the schools to use Welsh in Scripture
to use the Welsh language in the teaching
:t. The headmaster of Llanrwst County
to his governors on the subject as follows:
"I cannot say I quite agree with the proposal. It seems to me that the fact that many of the pupils in the Sunday schools have Scripture entirely in Welsh makes it more desirable that they should have some acquaintance also with Scripture in English to meet the difficulty of expression in English that some of them have. I have already told the boys who intend to do Scripture for me that they are welcome to put their answers down in Welsh if they wish, but I doubt whether many prefer it, and there are one or two pupils who would understand nothing of the lesson in Welsh. If the governors desire it should be done I can make arrangements for it, though I think it would be a mistake in many ways." It was decided to ask the Board to print the Scripture examination questions in both Welsh and English, but to leave the candidate free to answer in either language.

It is rumoured that it is probable that at an early date a new department or sub-department for Wales may be expected in connection with the Board of Education.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Labiche, Le Baron de Fourchevif. (1) 70 pp. (Blackie.) 6*d.* (2) Edited by W. G. Hartog. 58 pp. (Rivingtons.) 1*s.*—Two editions of a farcical play (1) with *questionnaire*, sentences for retranslation, and a vocabulary (apparently complete); (2) with a few notes, *questionnaire*, passages for retranslation, misprints, and needlessly ugly pictures.

Cendrillon. By E. Magee. 31 pp. (Blackie.) 4*d.*—A fairy tale turned into a musical comedy; probably quite suitable for a girls' school. The introduction of Pierrot is a mistake from the artistic point of view; we prefer the simplicity of the tale as it is given in Perrault.

O. Feuillet, Vie de Polichinelle. 133 pp. (Blackie.) 1*s.*—This amusing account of Punch is here issued with quaint, old-fashioned illustrations, an ample *questionnaire*, and a vocabulary which is tolerably complete. The absence of notes is not a serious matter, as the text is quite straightforward. It may be recommended for cursory reading.

A. de Vigny, Histoire de l'Adjudant. Edited by C. Brereton. 34 pp. (Blackie.) 4*d.*—This pretty tale deserved editing; it is taken from *La Veillée de Vincennes.* Mr. Brereton supplies a biographical introduction, and notes in which the reader is asked to "note" all kinds of things. We in turn venture to ask him to note a few misprints: *la* for *le* (p. 8, l. 19), *faire* for *fait* (p. 10, l. 20), *de* omitted (p. 23, l. 23).

Choix de Poésies pour les Enfants. Rédigé par Mlle M. Humbert. 40 pp. (Blackie.) 4*d.*—It is not clear what *enfants* Mlle Humbert had in mind when she compiled this little volume of French poems. It is not likely that the child capable of appreciating *Trois jours de Christophe Colomb* will be interested in many of the earlier poems. The vocabulary in many cases is really quite difficult. If we had space, it would be tempting to compare the spirit in which French and English authors write for children. Do not the following lines seem terribly stilted? A child addresses a cat:

"Quoi, vous avez tué, d'une dent meurtrière,
Mon charmant favori? . . .
Que ce trait est cruel! ah! fuyez ma présence!"

E. Labiche and E. Martin, Le Voyage de Monsieur Perrichon. Edited by W. G. Hartog. 99 pp. (Riving-

: them. For example, improvement might be : punctuation, especially when we remember are intended for beginners, *e.g.*, in Book XII. , 503, 655, 688, 708, 728. There are numerous d those we have noticed have been sent to editor of the series.

tin Primer for Young Beginners. By Edward xvi+135 pp. Dent's Modern Language Series et.—From the introduction we gather that this nt for very young persons. Here we find our ce with the editor. He ought to have in his mplete scheme of education, in which Latin its proper place; but he does not say anything this head, only implies that the learners are s to be addressed in a childish style. Now we Latin ought not to be begun as a class subject ge of twelve or thereabouts. Then, again, the ould begin Latin, in our opinion, as he should other language, without being troubled as lities—"First declension" and so forth. He e sentences—complete thoughts expressed in before he knows the numbers of declensions. -matter of his work should be such as is near ledge; not "Minerva erat dea sapientiae," or ia Alexandriae gloria Britanniae est." The hich he wants from the very first, are here xercise 33. At the end of the book is a 'ranscript," in which *Italia* is allowed to have al, *tabella* to be pronounced with a single *l*, of final *m* to the succeeding initial are made te a difficult subject (*sapiential laudant, reginae*), and *j* is used for the sound of *y*. as been written by someone who wants to ly with the writers of text-books on French, ised the class-room as a corrective. The book ited to beginners on any reformed system of d equally unsuited to those who teach from ires do not redeem a lack of intelligence in its

English.

inear Bible. (Cambridge University Press.) is is an admirable edition, showing not only but, so to speak, *currente oculo*, the varia- n the 1611 and the Revised Version. It is e to read either version aloud without being hange the direction of the eye or to run the g one's place. An illustration will show at nparative method. Two important verses are

ord added to them day by day those that were being the church daily such as should be

now that my redeemer liveth,

shall stand at the last latter day upon the earth:

after my skin hath been thus destroyed worms destroy this body,

y flesh shall I see God.

the variant translations are placed at the foot The book is at once a comment on the good Revisers and a vindication of the A.V.

an's Life and Death of Mr. Badman, and Var. By Dr. John Brown. viii+432 pp. University Press.) 4*s.* 6*d.* net.—As an addi- series of English Classics now being issued idge, this is worthy of attention; and two of Bunyan's works which are not by any means well known to the general public find at last a worthy editor, and are presented in a form which will command respect. As a faithful reproduction of the original text, no praise can be too high for these pages, and the introductory note supplies all the necessary information which scholars require. The volume is a bulky one, but inasmuch as it brings into currency texts which entitle Bunyan to a high place among those who have used our English tongue most worthily, it completely justifies its existence.

Précis Writing. By H. Latter. 214 pp. (Blackie.) 3*s.* 6*d.*—This book is intended for Civil Service candidates and for Army classes, and it has been compiled in order to meet the needs of those who felt that the first series, which was published in 1903, did not contain sufficient examples. The aim of the compiler has been to put together in the two books thirty exercises, as being a reasonable number to work before examination. In this second selection they have all been used at Woolwich and Sandhurst already, and deal in the main with diplomatic correspondence. May be safely recommended. Teachers, it should be noted, may obtain a key.

A Selection from Sir Joshua Reynolds' Discourses. By Prof. Findlay. xiii+216 pp. (Blackie.) 2*s.* net.—Sir Joshua Reynolds achieved a masterpiece of literature in his Discourses, not one whit less important than some of his masterpieces in painting, and these lectures have been several times of recent years included in popular series. The idea of making a class-book of them is a new one, and Prof. Findlay has carried it out happily and successfully. This is a book well worth the serious attention of all who are interested in the teaching of English literature.

Miss Yonge's Book of Golden Deeds. Part II. By H. H. Watson. 137 pp. (Macmillan.) 1*s.*—This is an addition to the Secondary Schools series of English Literature. The worth of Miss Yonge's work certainly makes its inclusion in this series quite fitting. Miss Watson's notes, questions, essay subjects, glossary, and index are extremely well done and highly praiseworthy.

History.

A History of Modern England. Vol. V. By H. Paul. vi+408 pp. (Macmillan.) 8*s.* 6*d.* net.—In this volume Mr. Paul completes his task, and supplies an index to his five volumes. The period covered is the decade from 1885 to 1895, those confused years during which Mr. Gladstone and Irish questions occupied the main attention of English people. Mr. Paul treats it as he has treated the previous forty years. He is never far away from the House of Commons, even in his treatment of foreign affairs, except perhaps in his short chapter on the triumph of ritualism. The general effect is, therefore, that of a good newspaper account of the events from day to day, written from a mildly cynical and not altogether impartial point of view. If we were asked for advice as to the books to be read in order to get a good working idea of England in the latter half of the nineteenth century, we should recommend, first, Mr. Paul's volumes for the surface history, and then Prof. Dicey's "Law and Public Opinion" for the philosophy of the matter. In one respect at least the two books would form a remarkable contrast. In Mr. Paul's it is all a struggle between political parties. In Prof. Dicey's, if we remember rightly, the words "Conservative" and "Liberal" do not once occur.

Our English Towns and Villages. By H. R. W. Hall. 198 pp. (Blackie.) 1*s.* 6*d.*—This is a pleasantly written historical account of English local life, treating mainly of institutions and architecture. There are several good illustrations, and a summary of each chapter. The story begins with the earliest inhabitants, and extends to the present day, though the later stages are very briefly treated. The only fault we have to find is that the chronological order is not always observed, and some confusion naturally results. And "folkland" is not public land.

Historic Links. By D. L. Maguire. xii+308 pp. (Swan Sonnenschein.) 6*s.*—The sub-title describes this book as "topographical aids to the reading of history." Its fourteen chapters contain sketches of social and political life, connected with topographical sketches. Its period is mainly mediæval. There are sixteen photographs and an index. Young people will get profit from the reading thereof, its accuracy being guaranteed by the help that Mr. Hubert Hall has given to the author. But its language is not attractive. There is too much writing down to the level of younger children than would be likely to read it.

Medallions from Early Florentine History. By E. Underdown. viii+253 pp. (Swan Sonnenschein.) 5*s.* net. —The preface says this book is not intended as a complete and detailed history of Early Florence, but an account of certain of the more striking and important events, and that greater prominence has been given to the more romantic and picturesque side of the historical narrative. To this it may be added that the "medallions" are not confined to Florentine history, but wander into Sicilian history as well. They are eminently readable, and, so far as we can judge, accurate.

Empire Builders. By W. K. Stride. x+109 pp. *British Colonization and Empire.* By F. A. Kirkpatrick. xvi+115 pp. (Murray.) 2*s.* 6*d.* each.—Both these books are published under the auspices of the League of the Empire. Each consists of six lectures intended to be read to audiences of young people. Those in the second book are intended to be illustrated with lantern slides, a list of which is given with instructions for their use. They are both well written. The first treats of Alfred, Drake, Clive, Wolfe, Hawke, and Cook; the second, of the story of the gain and loss of our Empire, 1600–1783. Not only is the story told, but morals are drawn. Indeed, our only doubt is if the matter is not too weighty for oral delivery as it stands, and whether it would not be better to take the hint in one of the prefaces and use them as materials for lectures.

We have received a pamphlet entitled "Scottish History in Our Schools," accompanied by a "handbook" of the publishers thereof, the Scottish Patriotic Association. Their object seems to be praiseworthy—to see that Scottish history is not misrepresented in text-books written south of the Tweed; but we think they would do well not to magnify so much what is apparently their pet grievance, that King Edward has called himself VII. The numeral is, of course, historically incorrect, but—*de minimis non curat lex.*

Geography.

A Progressive Course of Comparative Geography. By P. H. L'Estrange. 148 pp.; numerous pictures, diagrams, and maps. (Philip.) 6*s.* net.—The mainspring of this dis*tinctly ambitious work is* "education, not instruction." To this end the numerous illustrations—whether maps, or diagrams—as well as the text matter, ordinated, and questions and exercises are inserted corner. We have no hesitation, then, in saying book is written on the right lines. It remains teacher who uses it—and he must know his subje to see that his pupil understands it, a task wl think, will here and there require a fair amount of and a considerable amount of knowledge. The mapped out for six terms under the headings: ciples of Geography; (ii) British Isles; (iii) (iv) North America and Asia; (v) Central anc America and Africa; (vi) British Empire. To en book to be used in all parts of the school, a sy lettering has been adopted. Thus the juniors re the parts marked A, the middle school A+B, the A+B+C. A progressive and concentric system, if complicated in its workings, is therefore provide maps, accompanied by test maps, correspond t divisions by means of coloured type; brown names A boys, brown+blue for A+B boys, and brown+b for A+B+C boys. This arrangement, by the wa quite to upset the orthodox look of the maps; t that red would have been the better colour for A, section which contains the map facts of primary ance. The maps are simple, brightly colour accurate, though we notice one example of carele the omission of signs localising the mountain South America. All the world maps are drawn weide's equal-area projection. From the practical point of view, the main criticism we have to mak the language is too advanced and the subject-m condensed—certainly for the A boys. As a matter the style and diction adopted for the seniors is pre the same as for the juniors. In the preface the "i schoolboy who begins in the lowest class" is allud naturally learning only the parts under the he It depends what is meant by the "lowest class." no need of imagination to picture schoolboys of the lowest class who will make neither top nor tail parts. But begin the book with boys of, say, years, and it should go fairly well. With the h good and enthusiastic teacher they will work the intelligently and satisfactorily. The whole ide exercises is, we feel confident, excellent. No map without problems set on it; no picture is drawn questions on its meaning. That some of these and questions involve too long answers, and that the pictures are so indistinctly printed that we a teacher and taught will alike be nonplussed, ar which do not affect the value of the book as Certainly we recommend teachers to obtain a sig It is full of valuable suggestions, excellently simp and capital studies for home work. Whether ward shape (11½ in.×9 in.) and weight (nearly 3 militate practically against its use for class work i question. Boys to use it will have to be sitting d

Mathematics.

Junior Practical Mathematics. By W. J. Stair 350 pp. (Bell.) 3*s.*; with answers, 3*s.* 6*d.*—The divided into two parts; the first part deals with ar and algebra, the second with geometry, but the t are intended to be carried on together. Pupils the book are supposed to be under the guidan teacher, and theoretical discussions and explanat therefore reduced to as small space as possible.

of the book attention has been given to many ent suggestions as to work for beginners in cs; the exercises are very numerous, and seem eneral suitable, though some (for example, those will require considerable help from the teacher.

y. *An Elementary Treatise on the Theory and f Euclid.* By S. O. Andrew. xii+218 pp. 2s.—In this revised edition the plan of the een somewhat changed. The first seven chapters course of practical geometry, including trigono- ough proofs are frequently suggested in these it is only at chapter viii. that formal deduction and in that and the following chapter the lead- ms of elementary geometry are discussed. Some on solid geometry and a discussion of the men- f the simpler solids are given in chapters xi. There is much good and suggestive matter in though we think some of the proofs might be

metry *for Beginners.* By J. W. Mercer. xi+ (Cambridge University Press.) 4s.—This text- been prepared under the conviction that there is n why boys should not begin Trigonometry quite vided that they are not hurried through the stages"; the various trigonometrical ratios introduced gradually, their meaning and use rated by easy problems rather than by identities. en chapters are devoted to the development of solving triangles, no trigonometrical knowledge red beyond that of the simple definitions. The of the subject in these chapters is excellent; stress is laid on good methods of carrying out ng solutions, and the problems, which are very are both sensible and varied. The graphs on re very instructive; the graphical methods illus- pp. 281, 289, deserve even greater prominence iven to them, as they are of great value to the tudent, and are at the same time, in our own interesting to the pupil. These first ten e so good that it seems ungracious to offer any o them; but we think that perhaps too much ven to the solution of triangles before coming eral formulæ. The rest of the book is more and includes a discussion of the general de- the ratios, the addition theorem, identities and and the like. Though not so copiously illus- discussion is thoroughly sound, and forms an introduction to more advanced treatises. If the lines and with the thoroughness of this nometry may be safely begun at an earlier is now customary in good schools.

s in the Calculus. By A. F. van der Heyden. . (Arnold.) 3s.—This little book, in accord- ecent practice, makes no hard and fast division ferentiation and integration, and does not con- strations and applications to geometry. The s based on the method of limits, and is usually clear, though we think that the discussion of s, good as it is in some respects, might be vithout sacrifice of simplicity. The range e differentiation and integration of the ordinary pplications to geometrical and mechanical work ite series, including Taylor's and Maclaurin's While the inclusion of infinite series will be o some students, we hardly *think it* suitable for beginners, unless, indeed, these have had a good preliminary training in somewhat advanced algebra. The book contains more than its modest title indicates, and should be distinctly useful as an introduction to the calculus; students interested in examinations will find sets of questions drawn from recent Board of Education examination papers.

Science and Technology.

Physical Optics. By Prof. R. W. Wood. xiii+546 pp., with coloured frontispiece and 325 illustrations. (Macmillan.) 15s. net.—During the last fifteen years consider able progress has been made in extending our knowledge into the more obscure regions of optical theory; the two best books dealing with this aspect of experimental physics are Drude's "Lehrbuch der Optik" and Schuster's "Theory of Optics"; but Prof. R. W. Wood's volume comes in as a good third to these well-known books. The great charm about Prof. Wood's book is the clearness and lucidity of the explanations, and the description of interesting and often wonderful experiments by which difficult points in optical theory can be made clear: many of these experiments were in the first place devised by Prof. Wood. Those students who have mastered the general theory of optical phenomena will find Prof. Wood's book indispensable to their further progress. Recent advances in magneto-optics, fluorescence and phosphorescence, the laws of radiation, the scattering of light by small particles (including optical resonance), the nature of white light, and the relative motion of ether and matter; these, among other interesting branches of optical theory, receive adequate notice. It goes against the grain to find fault with a book which, in most particulars, is so admirable; but it must be mentioned that in some parts of the book the printer's errors are so numerous as to cause great annoyance, if not confusion, to the reader; as one instance out of several, the mathematical theory of "surface films," developed on pp. 296 to 303, may be mentioned.

Sound and Rhythm. By W. Edmunds. 96 pp. (Baillière, Tindall, and Cox.) 2s. 6d. net.—In his preface the author suggests that, as so much time is wisely spent in the teaching of singing in our primary schools, it would be well to impart to the children some knowledge of the mechanism of sound and of hearing. The seven chapters discuss the nature of sound, waves of sound, musical scales, organ pipes, "time" and movement, the ear, and the voice. The range of subject-matter is so extensive that it is impossible for the treatment to be thorough, and valuable space might have been saved by the omission of four full-page illustrations which show the sequence of positions of a boy and girl waltzing, and are by no means essential to the text. The author's explanation of the telephone and microphone transmitter (p. 7) is woefully in error, and this should be rectified at the earliest opportunity. Apart from these defects, the book will be interesting and instructive to those who require a slight knowledge of the subject. Teachers might read it with advantage, but it is not suitable as a class-room text-book.

Light. By F. E. Rees. 166 pp. (Dent.) 1s. 6d. net. —This book is intended for students reading for the intermediate examinations of a university who already have some acquaintance with elementary experimental optics. Comparatively few experiments are described; but, apart from this, the subject is treated in a very satisfactory manner. The volume is well illustrated and well printed, and it will be found quite trustworthy for the purpose for which it has been prepared.

CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD *will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

A Civic Museum and its Educational Aspects.

glad of criticisms of it in its educational aspect. I should like to know:

ether in the opinion of any of your readers the nent of an institution designed to serve such al purposes as I have outlined seems desirable ble.

ether there is anything else that can be suggested nprovement in particular or in general. That is, ıer data or accommodation educationists would of it.

ether the scheme could be placed before the chief ıal associations in England and Wales with a its being profitably discussed.

ıld mention that the memorandum of the scheme vic aspect is being included in the new volume of ical Papers shortly to be published by Messrs. an and Co., Ltd. HUNTLY CARTER.

ɔcial Service Institute, 11, Southampton Row, ondon, W.C.

Experiments on Liquid Pressure.

UMENT I.—*To prove that the pressure exerted by varies with its "head."*

atus: A burette reading 50 c.c.; a watch with a and.

ɪperiment is worked by two pupils, one doing the rt of the manipulation, the other recording the they are members of a junior class, it is well to teaching them to read the second hand of a Apart from the difficulty presented by the passing and beyond the sixty-second mark, there is need them familiar with the various marks and so that they may not be puzzled about them he experiment.

urette is filled with water right to the top. Then I who is working the experiment says "Ready" ime recorder, and turns the stop-cock about three- on: the water runs out easily, but not too quickly. bottom of the meniscus passes the zero mark, he the table with a pencil, and his helper records the cond. He taps again as it passes the 16, 32, and marks, and each time a record is made of the t which it passed.

eneral result is quite clear. It takes a longer the water to flow from 0 c.c. to 16 c.c. than from 0 32 c.c., and longer for the second third than for

From this the conclusion is easily reached that sure of the liquid, as shown in forcing the water he bottom, varies with the *height* of the column. all that can be deduced from the experiment. For exact measurement it would be necessary to read of seconds.

UMENT II.—*To prove that the pressure exerted by varies with the density.*

atus: The same as in the first experiment.

experiment is worked on the same lines as the The burette is filled up to the top with water: the ck is turned *full* on, and the time which the water to flow from 0 c.c. to 50 c.c. noted. The same thing a done, using alcohol or some other liquid of a lower ic gravity than water. The stop-cock is turned full both cases, because only in that way can we be sure equal quantities of water and alcohol are being used. the bore of the burette tube is wide enough to prevent larity phenomena from interfering with the easy flow e liquids, a result accurate within the limits imposed ading time only to the second may be expected. Thus, in one experiment where the water ran through in twenty-one seconds, the alcohol took twenty-four, giving the density of alcohol seven-eighths that of water. This is near enough to establish the general principle that the liquid of greater density exerts greater pressure, and therefore runs through more quickly. If greater accuracy were wanted, it might be got by reading to fifths of seconds. Probably, however, the method is most useful for demonstrating in a concrete way a general proposition which is quite valuable apart from an exact numerical basis.

Glasgow. WILLIAM BOYD.

Is a Duodecimal System Possible?

THE question of the Metric System is very much in the air at the present time; and some of the opponents of its adoption in this country have raised the very curious objection that the Decimal System is inferior to the Duodecimal System. As there must be many who do not properly understand what the term "Duodecimal System" implies, a few explanatory remarks may not be out of place. It is fairly well understood, of course, that our present system of notation, or enumeration, has for its base the number ten. In this way a number such as fourteen is expressed by one ten and four units, or otherwise 14, the number thirty-six by three tens and six units, or otherwise 36, and so on. The system may be illustrated in a fairly simple manner by the case of a man who is taking in numbers of a publication, which are packed as he receives them in a certain shelf of his book-case. As soon as he has taken in ten numbers, he has them bound into one volume and placed on a higher shelf. When he has accumulated ten of these larger volumes, he has these, too, bound into a still larger volume, and placed on a third shelf, and so on. Each of the volumes on this third shelf, therefore, contains one hundred single numbers of his publication, and a glance at his book-shelves enables him to see at once the complete number of single publications he has received. Thus, four volumes on the third shelf, six on the second, and nine on the lowest, would indicate 469 single numbers of the publication. If, now, the number twelve be taken as the base of our system of enumeration, the number 14 will no longer denote one ten and four units, but one *twelve* and four units, that is, the present number sixteen. The number 36 would denote, not three tens and six units, but three *twelves* and six units, that is, the present number forty-two. Without finding further examples of this, it is at once clear that numbers above nine would no longer retain their old significance. We should not only have to learn their new meaning; it would be necessary, too, to forget the old. This is one degree worse than learning a new language. Now, since the number 10 would, in the new system, represent twelve, and 11 would represent thirteen, our first duty would be to find two new digits to represent the numbers ten and eleven. In mathematical work these are generally denoted by the letters T and E. Equipped with these two new digits, we can now venture upon a new multiplication table, which may be taken as a specimen of what would have to be learned by those who are enthusiastic enough to take up the study:

4 × 1 = 4	4 × 8 = 28
4 × 2 = 8	4 × 9 = 30
4 × 3 = 10	4 × T = 34
4 × 4 = 14	4 × E = 38
4 × 5 = 18	4 × 10 = 40 (*i.e.*, our present forty-eight).
4 × 6 = 20	
4 × 7 = 24	

The prospect of having to learn new multiplication tables, and to become familiar with the new significance of numbers, is assuredly not an alluring one. Put briefly, that is exactly what we should have to do if the Duodecimal System were adopted; and it is certainly a little curious that those who object to the Metric System on the score of the inconvenience it would cause should recommend for our adoption a system which the people of this country could never learn. We should still, it is true, have seven days in the week, and but few would reconcile themselves to the idea that there are only ten months and 265 days in the year. On the other hand, the number thirteen would lose much of its fatal significance in the harmless guise of 11. Numbers that have hitherto been invariably connected with certain events would have to be ruthlessly torn from their environment. Would it be easy to realise that the number of Apostles was 10, or should we recognise the 119th Psalm in its new guise of the 9Eth?

So, too, in the question of time. We should have to be satisfied with 50 seconds to the minute, 50 minutes to the hour, and 20 hours would form a complete day; while the present 12.15 train from Euston would start, if punctual, at 10.13. Once more it may be asked: Are we prepared for such a change? We may wish that our primitive forefathers had adopted the number twelve as their base of notation; we may look with longing eyes at a system that is certainly superior to our own; but it is not for us, nor yet for our children. The Decimal System is ours, and we belong to the Decimal System; it is part of our life. It is not too much, however, to hope that our people may have the enterprise to adapt our system of weights and measures to the decimal base, so that in weights and measures and in enumeration there may be one language that all can understand.

T. R. P.

The Worship of the Diagram.

I VIEW with amazement the remarks of your correspondent, Mr. W. A. Whitton, with regard to the use of the diagram and figure. I am by no means prepared to assert that the figure should be the idol which Mr. Whitton seems to think examiners and examining bodies make it, but, at the same time, it would seem that there can be no question of its necessity.

In the first place, without it, how can a teacher of geometry possibly discover whether the apparent "exercise in logical reasoning" shown to him by a boy is after all nothing more than a feat of memory? It is, I think, the experience of every schoolmaster that there are many boys who would rather commit a geometrical proposition to memory than attempt to appreciate its logic; and surely in the teaching of geometry this is the very thing the teacher has to fight against with all his power. Besides this, presupposing that a figure is an aid to imagination and nothing more, is that any reason why it should not be used? It seems to me that Mr. Whitton's contempt for the figure is in direct contravention of the fundamental principle of modern education—the cultivation of intellect by means of the development of the power of observation and of detection of natural cause and effect. I should therefore be driven actually to the other extreme, and say that I should prefer a boy to draw me a figure which he built up as he proceeded with an oral demonstration; and I am bound to say that I have found this method to succeed best in practice.

With regard to the diagram in chemistry and physics, *one does not usually expect a* ither in perspective or of such painful accuracy that it r faithfully the actual relative series of, say, a be a flask. One has a right to expect a *plane* diagr clearly sets forth the practical method of demc a theoretical truth (such, for instance, as the dia the *Philosophical Magazine*); and, besides this, th care and accuracy engendered by the drawing of diagram is invaluable in its effect on the practical the laboratory. I have seen too much of the go produced by quick and careful drawing of appar to abandon my custom of insisting upon it practicable.

Again, it is certainly easy for an examiner to the work before him whether a boy has the gift ing or not, and it should not be difficult for him accordingly.

After all, the whole question is governed by of method in education. Just as we tabulate sets ments or similar reactions in chemistry, use c squared paper to represent a law in physics, map ments and diagrams in geography, so must we u and diagrams in mathematics, taking care tha work shall run on the same lines and be co-ord the greatest possible extent.

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hungry sheep look up and are not fed.

ding Mr. James Oliphant's recent le,[1] I bethink me of a schoolmaster d of mine, who is particularly successful r his boys with the confidence to give o what little they know of French and o making them the effective possessors of that little; his attitude to his class, is expressed in the phrase he not unuses—"Hang the grammar, boys: let me words!"

phant tells us that "If the youthful not attracted at the outset, there is that all his later work in literature oo much of the character of drudgery purposes and that the habit of reading be firmly established." Precisely so! ade this admission, he at once proever, to recommend a course of readundoubtedly would savour of drudgery s of every healthy boy; girls—dear, eatures—would perhaps take what was them without demur but even they that an afternoon at the theatre, spent pany of Mr. Benson or of Mr. Forbes was of far more value than the petition during a whole term, by a lemi-semi-competent teacher, of somedantic if not sacrilegious annotations Shakespeare's plays. We flatter our- the schools are making Shakespeare e forget that Sir Henry Irving and erful actors have worked upon our and overlook their supreme services s. It is only of late years that the has dared venture into the theatre; to thank Mr. Benson, I believe, for action of the fashion of sending whole m school to the theatre.

us recognise facts: the vast majority s cannot expound the beauties of our classics with advantage; the stream of English literature should be allowed to flow pure and undefiled through the youthful mind.

Moreover, let us set plain bread and meat before *pâté de foie gras* and teach simple composition, with reference to everyday work, before attempting to develop a refined taste and a sense of perfection in composition "by dwelling on the beauty of Tennyson's versification." It were not unfair comment on this advice to quote lines taken from Henry Sidgwick's Memoir:

> Whereof the priests, for all they say and sing,
> Know none the more nor help in anything.

The average teacher simply cannot understand, say, "In Memoriam." In Canto 123, for example, almost the whole philosophy of modern geology is compressed into eight lines:

> There rolls the deep where grew the tree.
> O earth, what changes hast thou seen!
> There where the long street roars, hath been
> The stillness of the central sea.
>
> The hills are shadows and they flow
> From form to form and nothing stands;
> They melt like mist, the solid lands,
> Like clouds they shape themselves and go.

How can such versification be appreciated by those who scarcely know the distinction between sand and gravel, who not improbably are entirely ignorant of the nature of clay and limestone and incapable of differentiating a fossil from a fig-leaf? Let us acknowledge that our "appreciation" of not a few "classics" is based, in no small measure, on the operations of a class of literary log-rollers whose business it is to write up systematically the merits of mere word-painting: let us learn to think more of the stuff in it—of the subject-matter of the literature we prescribe for the use of schools. Far better give Charles Kingsley's "Town Geology" as a means of creating imaginative interest in legends of the past than Morris's languorous "Earthly Paradise": it might be generally recognised that we live in an earthly paradise if our schoolmasters would but let the fact be known.

Ruskin, without scientific training, could picture in vivid language (and did so with perfect

[1] "Authors for School Reading," THE SCHOOL WORLD,

justice and truth) the gradual conversion of the black slime of a beaten footpath into sapphire and opal and diamond—the most perfect and beautiful of gems. An equally striking flight of fancy on his part is to be found in the chapter on Pyramid Builders in the "Ethics of the Dust," where he portrays the process by which atoms assort themselves to form crystals. But Ruskin was a true artist—a man tutored and inspired by the contemplation of Nature, not by books alone; he could therefore be constructive.

Take all the fairy tales together, all the heathen myths, it is impossible to match the wonders unseen around us by ordinary eyes—yet open to inspection by all who are trained, in some degree, to adjust their visual powers to such sight and have learnt to decipher a few of the letters in the great book of Nature.

Go to! Mr. Oliphant: preach a saner doctrine and make it clear to teachers of our literature that books alone are of small value: that there must be real understanding of things—not mere lip service to words; teach that meat should be sought for.

The January SCHOOL WORLD contains an article on "Paraphrasing in Practice." If the object be to cultivate a refined taste, an appreciation of versification, how can we ask young people to reproduce in their own words passages such as are quoted on p. 12 in that article? Such tactics simply nauseate. Fancy requiring a boy to translate the "Village Blacksmith" into his own words—his proper tendency would be to use language of the "jolly rot" type! The only phrase in the verse quoted likely to give difficulty or require explanation is "like the tan," which nearly every teacher would make little of: though, if hunted down, it might afford real sport and carry a class from the Blacksmith to the contemplation of their boots and thence perhaps to the New Forest, a far more delectable spot than any Morrisian paradise. It is because English is "taught" on such lines that boys come to our colleges unable to write two lines of decent English descriptive of their own work—unable to read the meaning out of a few pages of straightforward prose, let alone to write a passable *précis* thereof—unable and unwilling to read books of worth.

Of what consequence is it whether "Treasure Island" has or has not "that elevation in subject or tone that could alone make it educative in the highest sense": let us take it in the best sense we can—as one of the most stirring and lifelike books ever written for boys, young or old. Does not Prof. Sadler recommend the study of the humanities? "Treasure Island" is just full of human nature. It is sheer pedantry to pretend that elevation in subject or tone alone makes for education: and surely Stevenson took care to write English.

Paraphrasing my schoolmaster friend's injunction, I would say to boys and girls—"Hang classic literature! browse on books, early and late; almost any books, all the books can get hold of: read them and get the of them that can be got." So handled, gradually learn to regard books as "kings' treasuries," full of interest and tion: for if it be in them, in time they to separate wheat from chaff, to gathe here and a grain there—in itself a facu cultivated.[1]

I am Goth enough to urge that, at matters little what is read, so long as of reading seriously and acquisitively b —it matters little, that is to say, so lon books are read. The practice prevailin mentary schools, fathered during years School Boards everywhere, of using "R is one of those wicked perversions of san which should be terminated without fur of time.

Supposing that we were to consult girls themselves instead of following sumably childless, grown-up framers of official schemes of literature, who hav no longer any recollection of the days youth and of the vast longing for knowl incident by which they were possessed wh educated": should we not be put in p of really valuable advice? Would they us that Macaulay's essays on bores like Hastings and Frederick the Great had terest for them—being for the most par their comprehension; that much of Scott prosy to follow and that they protested a year or two of it in school when th read it all in the summer holidays? "cultivation of the historic sense"—I Oliphant—but the innate desire for "knowledge of actual fact," they would say, made them wish for food unpeptoni which their young stomachs could deal; f of it too. Boys like cake with plums gether with unlimited bread and butte rule, they don't like the fat of meat—an won't eat it: the taste comes later in life, tendency to elaborate adipose tissue, will you, more or less influences appetite.

There *are* old boys who can help us t stand young boys—Hugh Miller, for whose account of his education in "My and Schoolmasters" should be in the every teacher and of as many boys as After learning his letters by the study posts, he attended a dame school in year; the process of acquiring knowle been a dark one, he tells us, until his mi to the meaning of the most wonderfu stories—the story of Joseph. "Was th

[1] I well recollect reading Marryat's "Snarleyowe" when lad and being much impressed by the opening of the King's l blowing down on the sealing wax through a red-hot tobac When I became a student of chemistry and had to wax over c the ingenious expedient described by Marryat at once occurre and over again it has proved to be of service. Whether " was educative in the highest sense or not, I learnt a trick from it. Classical writers, being simple literary folk, as a ra barren of suggestion.

scovery made before? I actually found ıyself that the art of reading is the art g stories out of books and from that the art of reading became one of the lightful of my amusements." After e read the new-found story of Joseph not once but many times; then came Bible stories, followed by Jack the ler and many more of resembling char- What follows is worth noting:

tolerable nuisances the useful-knowledge books arisen, like tenebrious stars, on the educational darken the world and shed their blighting in- the opening intellect of the "youth-hood"; and ny rudimental books—books that made them- such by their thorough assimilation with the mind—I passed on, without being conscious of ne of division, to books on which the learned t to write commentaries and dissertations but und to be quite as nice children's books as any rs. Old Homer wrote admirably for little folk, in the Odyssey; a copy of which—in the only lation extant, for, judging from its surpassing d the wrath of critics, such I hold that of Pope ound in the house of a neighbour. Next came ıot, however, in a complete copy but represented the six volumes of Bernard Lintot. With what at how early an age true genius impresses!

, every available book was devoured by Apparently he learnt little in school, s behaviour was far from correct: but ɔors—the seashore and the rocks were :

And Nature, the old Nurse, took
The child upon her knee,
Saying, "Here is a story book
Thy father hath written for thee.

"Come wander with me," she said,
"Into regions yet untrod
And read what is still unread
In the manuscripts of God."

ad to some purpose indeed. In later a mason, he studied the rocks as he them; and though eventually he blos- ut as a successful newspaper editor, he amous as a geologist on account of the l work he did in unravelling the mysteries ld Red Sandstone. Mr. Oliphant might ıde his countryman's book on this subject t of classics, as it is now printed in the nan" series.

eople who read seriously at the present scarcely those who have been nauseated I by a diet of hashed English classics, t a snail's pace rate multiplied to the nth; theatres and music halls seem to ıain attraction to those who have seen soul taken out of books at school.

t it from me to discourage either the words or the reading of classic litera- would impress from the beginning, con- upon every boy and girl—what never is d—*earnestly* and *authoritatively*, as ays in his "Sesame and Lilies," know- ing that he is right—"that you must get into the habit of looking intensely at words and assuring yourself of their meaning, syllable by syllable—nay, letter by letter." Further, that "no book is worth anything which is not worth *much*; nor is it serviceable until it has been read and re-read and loved and loved again; and marked so that you can refer to the passages you want in it. . . . Bread of flour is good; but there is bread sweet as honey, if we would eat it, in a good book."

I would go still another step and urge that what is read should be criticised—that the authority should always be asked for, questioned and considered upon which the statements are made. The belief that what is printed is true would then give place to a proper scepticism; text-books on "science" would no longer all be regarded as scientific treatises; and style would come to be of importance—there might even be general agreement with an opinion such as Warde Fowler expresses in his "Oxford Correspondence of 1903":

I wish they would attend a little more to style—to the *ars rhetorica*, which is after all in its proper sense only the result of a conscientious effort to think clearly and get down your meaning neatly. Rhetoric need not mean adornment, though it is often used in that sense. No one would call Darwin a rhetorician, yet he was one in so far as he positively refused to let any sentence stand of which the meaning was not clear in his mind and pellucid to the reader.

If we are not very careful, now that we are becoming more or less alive to the need of paying some attention to our own language, by aiming too high we shall make precisely the same mistakes that we have been making all these years in teaching Latin and Greek. In this connection, apart from much elegant trifling, an unfortunate lack of considered literary polish and horrible superabundance of comma'd conjunctions, the "Upton Letters," here and there, contain not a few grains of superlative wisdom of which teachers may well avail themselves—as they are clearly the outcome of solid experience and the outpourings of an acute and not unduly biassed though dulcet mind. The letter of July 16th, 1904, is of particular value—a scathing condemnation of the existing system but full of suggestion; near its close, we read: "What produces the cynicism about work so common in classical schools is that the work is of a kind which does not seem to lead anywhere and classics are a painful necessity which the boys intend to banish from their mind as soon as they possibly can."

English classics are all too rapidly taking up the position which is being vacated by Latin and Greek.

I will not quote more from the letter—striving teachers should read its every word and seek to give effect to its lessons. In passing, let me add, we must lament the fact that its writer lacked the courage, when the opportunity was his, to join battle with the foes whose existence he re-

cognises and deplores: his worst should have been of more worth than the best of those he condemns, because he recognises what is bad: in a course which so few follow. If, as asserted at the close of the letter—"it is the stupidity of virtuous men which is responsible for the continuance of [our] arid, out-of-joint system"—the sooner "virtuous men" leave the schools, the better it will be for the public weal. Virtue like literary training is of small value unless it find active courageous expression: inoperative virtue is little short of vice.

To reform the teaching of English—or rather, I should say, to give teaching in English—we need to begin low down by training children to read aloud properly. Eminently sane advice is given on this subject by Mr. Charles Simmons in an entirely admirable and luminous article on "The Preparatory Day School of the Future" published in the September number of the *Contemporary Review*. Mr. Simmons dwells on the evils arising from inarticulateness of speech combined with want of ear training; he asserts that in failing to give training in articulation we are throwing away the most important of all aids to learning. Thring, as he points out, long ago insisted on the talismanic power of such teaching. Mistakes in spelling are mainly reproductions of mistakes made in pronunciation; words are never truly seen until they are pronounced properly.

We neglect such training absolutely—and with what consequences? Not only spelling suffers. Nothing is more striking than the self-conscious, inarticulate, mousey-quiet and subdued state of the average English boy or girl in class—not only will they not ask questions but it is almost impossible to drag more than monosyllabic answers from them. The contrast which the American schools offer in this respect is extraordinary: all the Mosely Commissioners were struck by the open and free manner in which exchange of opinion took place between teacher and pupil. Why are we so stupid—is official method in any way responsible for our madness? When I complained recently in a school that the boys spoke only in whispers and suggested that they should be made to speak out, I was told—"Oh! the inspector likes them to speak softly!" The temptation was irresistible: the only possible reply to such a statement was to imprecate that inspector.

To gain time for reading, I would eschew at first all formal lessons on geography, history and much else—everything indeed except manual work—and devote hours, many hours, per week to the mere reading aloud of interesting books and to talk thereon. Only when all were proficient readers should the reading be done silently, for the most part—there should always be much reading, be it noted—yet never entirely. Evening literary work at home or at school should be confined to reading. The now conventional lesson must have been the discovery of some exceptionally clever boys in the past, as it is a most *effective way*—now that the cane is abandoned —of getting the work done mainly by th Learning by serious reading will re teacher and throw the onus back on th something will be learnt when reading is systematically.

In reading, every kind of book shoul under contribution. And reading in fo guages too should be encouraged, as fruitful means of acquiring confidenc vocabulary. We must advance beyond t ably narrow "classic" course now p by authority and more and more follow schools: this, that and the other subje read up in turn; informing books of e will be sought out and laid under con

The result of such search, unfortuna be the discovery that the number of books giving sound and accurate infor very small. But this may not be alt misfortune.

By rendering breadth and clearness standing impossible, by discouraging th of thought-power, text-books and primer defiling the ways of education and hir almost as seriously as do examinations; to favour mere acquisitiveness. But t If you make the suggestion to a publi readable informing books are required, quietly told that it will not pay to prod as a writer you know that you canno living wage by writing them—yet wri should be.

Books we must have and the art of us must be universally taught—for is it not

It is clear . . . that with this simple cin facility of getting Books, the whole conditions o ness [of universities] from top to bottom wer Once invent Printing, you metamorphosed all t or superseded them! The Teacher needed n gather men personally around him, that he m to them what he knew: print it in a Book and s far and wide, for a trifle, had it each at his ov much more effectually to learn it!—Doubtless th peculiar virtue in speech; even writers of Books in some circumstances, find it convenient to sp witness our present meeting here! There is, say, and must ever remain while man has a distinct province for Speech as well as for W Printing. In regard to all things this must r Universities among others. But the limits of th nowhere yet been pointed out, ascertained; muc in practice: the University which would comp in that great fact of the existence of Printed stand on a clear footing for the Nineteenth Cent Paris one did for the Thirteenth has not yet existence. If we think of it, all that a Univers highest school can do for us is still but wha school began doing—teach us to *read*. We lear in various languages, in various sciences; we alphabet and letters of all manner of books. place where we are to get knowledge, even knowledge, is the Books themselves! It depend we read, after all manner of professors have best for us. The true University of these Collection of Books.

I know of no passage in the whole of

, indeed in any book, more pregnant of
: none, however, which is more neglected
rsities and schools generally; and yet we
verned in all things by literary minds.
proof more absolute be given of the in-
of physicians to heal themselves? of the
an effective correlation of practical with
studies? Well may Ruskin say—"What
dless capacity for sleep and for serene
y there is in the human mind. The fact
re all and always asleep throughout our
nd it is only by pinching ourselves very
at we ever come to see or understand any-
We may surely give heed to the words
whose writings certainly are educative in the
sense: and waking up from our Fat-Boy-
wick state not trouble, for the present,
e the best authors for school reading—but
simply that we have much *Plain Reading* in
We may well be content to rank such
tion with that in the equally neglected arts
n *Cooking* and *Plain Sewing*—bearing in
hat the three arts are those which primarily
ne the happiness of civilised man.

THE METRIC SYSTEM.

By R. Wyke Bayliss, B.A.
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I.—Exposition and Illustration.

he metric system badly taught in our
hools? The report of the examiners on
e Oxford Local examinations of July last
seem to justify an affirmative reply. Their
ns are to the following effect:

"here was no proof that the metric system had
the attention it deserves."
"he terminology of the metric system is not properly
d."
"arelessness as to the position of the decimal point
ommon in all questions involving decimals."
"he meaning and object of approximation were not
appreciated."
"eights and measures in the metric system proved
g-blocks to many."
"hange from the metric to the British system and
a caused great confusion."

e schools have to plead guilty to this
ble indictment, we must at the outset dis-
n between "bad teaching" and "insuffi-
rill." By "teaching" we understand an
our to draw out the intelligence of the
combined with clear explanation and apt
ion. By "drill" we mean the continued
on of the same type of example, combined
rict insistence upon method and neatness.
quite possible for disaster in examination
w the best teaching, if insufficient time
n given to drill. Formerly, when a boy's
as regarded as a cabinet of empty pigeon-
o be crammed with knowledge, purely
ical drill produced machines, often excel-
lent in their way, but devoid of initiative. In an examination such machines would answer a question either accurately or not at all, and the products of such drill were probably regarded as examples of good teaching. Now, however, that we believe the brain to be an organism which should be developed by judicious culture, we are liable to neglect the drill altogether, because so much more time is required for heuristic than for didactic teaching. But the examination results are at times mistakenly diagnosed as due to bad teaching. It should also be noted that, although the clearest teaching and the best drill may have been given by each individual master, yet the resultant effect upon a pupil's mind may be unsatisfactory if successive masters have adopted very diverse methods. There must be a certain modicum of agreement and continuity of purpose.

We have first to consider the terminology of the metric system. This seems so beautifully simple to an adult that its difficulty to the childish mind is apt to be underrated. Just because there is so little to explain, there is little for the mind to grip. Consequently, boys who appear to know the exact meanings of *metre*, *centimetre*, and *millimetre* one term will return after the holidays with minds almost as blank as if they had never seen a metre-rule in their lives. This forgetfulness may be due in the first place to want of vivid illustrations. A master is apt to imagine, when a class can measure the length of a room in metres, of a desk in centimetres, and of a model in millimetres, that each boy knows the meaning of these words. But much more in the way of illustration is needed.

For instance, the following questions might be set:

> State roughly in metres the height of a man, of a lamp-post, of a room; the breadth of a road or building; the length of a cricket pitch or field; the distance between two milestones; the heights of mountains and breadths of rivers:—

thus leading up to kilometres. Again—

> State roughly in centimetres the breadth of your hand; the lengths of your fingers, foot, fore-arm; the diameters of various coins, and the thicknesses of certain books. Also estimate in millimetres the breadth of a finger, pen, or pencil; the thickness of a coin, wire, thread, or sheet of paper:—

thus introducing decimals of a millimetre.

Only when such questions are readily and intelligently answered do the pupils begin to understand the terminology. If any master has never tried the effect of these queries, he must not be surprised if various boys should declare that the height of a man is 1 metre, 3·6 metres, or 6 metres; nor if the length of a cricket pitch should be estimated at 2·22 metres and yet 22·2 centimetres at the same time by the same individual! These are *actual*, not imaginary, replies from boys who had made scores, if not hundreds, of measurements with a metric rule!

Perhaps the *decimetre* should be now introduced. Opinions upon this point vary. Some

masters object to this word on the ground that it confuses pupils and is not used by practical engineers. On the other hand, a successful master declares that his best results have been obtained by basing his whole system upon the *decimetre*, which he introduces by the name of "hand," pointing out that the height of a horse is expressed by almost the same number in *decimetres* as in *hands*. However this may be, the system is certainly more symmetrical if the term decimetre be retained, and its use probably leads to a clearer idea of the litre. The other terms of the metric system should be illustrated in a similar manner when the stage for their introduction is reached.

Pictures will be found of very little use. This is so generally recognised that there appear to be few metric charts on the market. There is the well-known one of the Decimal Association (Oxford Ct., Cannon St., E.C.); another by Barnard Smith (Macmillan); another by Messrs. G. Philip and Son (Fleet St.); and one or more by Messrs. Hachette et Cie. (Charing Cross). Whilst some of these are excellent, in certain cases the diagrams are drawn to a reduced scale which completely destroys their practical value.

There can be little doubt that actual measurement made by the boys themselves in class is the only trustworthy method of bringing home to their minds the nature of the subject they are studying. Hence at the earliest stage of the work no apparatus is required beyond a metric rule for each boy and a set of models of various sizes and shapes. Cubes, prisms, pyramids, cylinders, and cones can be obtained in abundance. No special reference to these seems required, except, perhaps, that each can now be bought in two different sizes for the use of alternate boys in class, in order to prevent copying.

But for the master's use the Metric Demonstration Rule (to be obtained from the Educational Supply Association for 2*s*.) seems worthy of special mention. It is so clearly marked that it can easily be read from the opposite end of a class-room. The metric rules for the pupils are made in great variety. There should be a few metre-sticks, which will enable two boys to measure the length of a room or field by placing their sticks end to end alternately. Then each boy should have a half-metre rule for general practical work, and also a small ruler for constant use. Incidentally it may be remarked that the best form of ruler has one edge marked with centimetres and millimetres, another with inches divided into tenths, and on the reverse side inches divided into twelfths and sixteenths respectively.

Plenty of drill must be given in converting measurements from centimetres to millimetres, metres to kilometres, &c. We are thus led to consider the position of the decimal point, with special reference to the comments of the Oxford examiners. Probably the chief cause of failure is want of appreciation of "local value." It is not sufficient that a pupil on seeing the number 234·5 should be able to say that the ' presents thirty, or that the "5" repres tenths. He may repeat such lessons mistake, and yet when asked to mul number by ten he will write down 234·5 we do seem to trace the error to bad It appears that he has been allowed "To multiply by ten you add a noug should rather have discovered that in mu by ten each figure is moved one "place left. But however well he may ha "taught," if he has not also been "dril will almost certainly discover the f "rule" for himself; and the sharper the greater the danger. The only remedy is (until a fairly advanced stage is reach he must actually move the figures in pe the operations of multiplying or divi powers of ten. Thus:

"What is the weight of 100 packets, each 23·4 kilograms?"

Total number of kilograms = 23·4 × 100
= 2340·

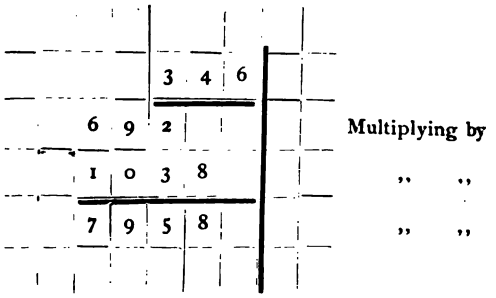
Again:

"If 23·4 dollars are equally divided amongst how much does each get?"

No. of dollars each gets = 23·4 ÷ 10
= 2·34

In the early stages it may be nece make the pupils work upon squared pape *a line to indicate the unit's place*. Thus

"How many litres are there in 230 casks taining 346 litres?"



Answer: Seventy-nine thousand five hundred a litres.

Gradually they should be taught to this process with the following abbreviati

No. of litres = 346· × 230
= 692
1038
= 79580·

But the *line* should be retained until th at least been introduced to decimals.

The process may be presented as follo

"A rod measures 3 metres 45 centimetres; length of (*a*) thirty such rods, (*b*) a thirtieth of a

(*a*) Length = 3·45 m. × 30
= 345 m. × 3
= 1035 m.

(*b*) Length = 3·45
= 0·345
= 0·115

y the intermediate step would be
ıd the line replaced by points; thus:

= 3·45 m. × 30 (*b*) Length = 3·45 m. ÷ 30
= 103·5 m. = 0·115 m.

wedded to older methods will contest
n of such proposals. But the whole
his method is to make the pupil feel
the figures from left to right or right
the unit's place. If some such system
rsally adopted it would hardly be pos-
ar (as we so often do now) of boys
y 100 by long division or multiplying
separately when multiplying by ten.
n of many mathematical masters is that
s than rigid insistence upon such drill
me will give children a real grip of the
tation.
e, it is here assumed that the whole of
work would be illustrated by means of
scale, and that plenty of concrete ex-
uld be given in the "four rules" deal-
rancs and centimes, dollars and cents,
and florins, and also with the gram
re.
an be obtained (from the E.S.A. at 4*d.*
aining imitation German money. Coun-
senting English money can also be
ıt not in pounds, florins, and mils (which
bly be the form our coinage will take
ised). It was stated that strict laws
imitation of either French or American
ut fortunately sets of imitation French
an be obtained from Messrs. Hachette
ınd there is no reason why the boys
s should not make counters out of paper
ırd to represent any system. Would it
be a valuable exercise—in connection
oximation—to teach children how to
s. d. into pounds, florins, and mils?
mere suggestion, but it might be worth

s are, of course, to be found in every
. These provide a valuable change, and
another faculty. The great test, how-
he metric system lies in its application
d volume. Having learned the meaning
ıre, the pupil will discover for himself
quare centimetre contains a hundred
illimetres. This may be done either
ithout squared paper. A blackboard of
e metre divided into ten thousand square
s is not only useful to the master, but
y more to the pupil than any amount
verbal statements. Here the teaching
in be followed by careful drill in re-
. m. to sq. cm., &c.
ll be a convenient place to introduce the
pproximate multiplication, the pupil at
ly leaving out the superfluous figures in
on of the columns, and then learning
ı the whole operation to (say) four-figure
It may be well (at any rate initially)
he phrase "to so many decimal places,"
this is learned first the true idea of ap-
proximation seems afterwards to be grasped with difficulty. It is a common mistake (perhaps not confined to pupils) to suppose that if a measurement is known to two decimal places its square can be calculated to one decimal place. It should be pointed out that if we know that the length of the side of a square lies between 0·03 and 0·04, we only know that its area lies between 0·0009 and 0·0016; whereas if the length lies between 2·03 and 2·04 we find the limits for the area between about 4·12 and 4·16. Similarly, show that there is no necessary connection between the number of decimal places to which certain quantities are known and the number of decimal places to which their products can be calculated.

Again, let the pupils calculate the area of a square of length 123·4 cm., and then find what difference it would make if the first measurement had been 0·05 cm. too short. They will be surprised to find that, so far from the difference being merely 0·05 sq. cm., or even 0·5 sq. cm., it is actually greater than 10 sq. cm.; but, on the other hand, the fourth significant figure is scarcely altered, and the third not at all.

If it takes too long for the pupils to discover, it might now perhaps do no harm to state that if the side of a square be known to *four*-figure accuracy, we can calculate its area to at least *three*-figure accuracy; and, further, that if any two numbers be known to an accuracy of a given order, we can determine either their product or their quotient to an order which (at the lowest) is less than the given order by unity.

In the report upon the Oxford (Senior) Local examinations it is stated that "the larger number of candidates used contracted methods in a thoughtless way, either rejecting too many figures and so obtaining inaccurate results, or going to the other extreme." Such thoughtlessness would be less common if every type of question in which approximation is possible were illustrated by at least one example in which the answer had to be calculated to four significant figures.

A typical example would be: "Find to four-figure accuracy the circumference of a circle of radius 95·6784 metres having given $\pi = 3{\cdot}1415926$. How many figures of each number will you need for your calculation?"

One would not expect boys to enter into refinements of accuracy or to note that the figures $95{\cdot}68 \times 3{\cdot}1416$ would be sufficient; one would merely require them to say: "To ensure *four*-figure accuracy retain the first *five* figures of each number-thus: $95{\cdot}678 \times 3{\cdot}1416$."

But to do justice to the question of approximation would occupy the whole space at my disposal. It cannot, however, be left out of consideration in dealing with the metric system, so that these brief remarks are perhaps not altogether misplaced; for, although they may appear trite to many minds, there are some to whom these suggestions may be not quite valueless.

Volumetric measurements can be treated from two totally different points of view. We may take the *litre* as our unit of measurement, in

which case the treatment will be precisely the same as in dealing with linear measurements. Excellent models of the metric liquid and dry measures can be obtained from the E.S.A. However, it must be confessed that although admirable for the purpose of illustration, they are scarcely suitable for practical work, either in the laboratory or in the class-room. It would really seem that in this particular case inexpensive full-size pictures would convey almost as good an idea as the models themselves. The teacher, however, can again appeal to everyday experience by asking such questions as—

"State in litres the volume of a tea-cup, bucket, bath, pond, room, haystack, or church."

The consideration of the litre as a cubic decimetre is, of course, of far greater difficulty and importance. This can be adequately illustrated only by the beautiful little model sold by the E.S.A. (price 6s.). It consists of a cubic decimetre divided into ten slabs of a hundred c.c. each. One of these slabs is again divided into ten bars of ten c.c. each, and one of these into centimetre cubes. No school should be without this model, which will suggest to the experienced teacher numerous exercises in calculation and in approximation, besides affording the best means of bringing home to the average boy the true nature of space.

It seems unnecessary to dilate further upon the illustrations and drill which will be required to consolidate the instruction given concerning volume and weight, as the teacher who has grasped the principles already enunciated will have no difficulty in providing similar object-lessons and exercises. But he must be warned against allowing any boy to confuse weight with volume. The Oxford Local report on science states that "in the numerical questions many candidates treated kilograms as a measure of volume," and recommends that "more time be given to the study of units."

The ideas put forward in this article may be summarised as follows:

(1) Bad examination results do not necessarily imply bad teaching. The results may be caused either by insufficient drill or by too great diversity of methods.

(2) The terminology of the metric system should be copiously illustrated both orally and practically by numerous examples.

(3) The position of the decimal point (or, better still, that of the unit's place) should be emphasised and treated as fixed; whilst the figures should be regarded as flowing to the left or to the right in multiplication or division by powers of ten.

(4) Attention should be devoted to methods of approximation throughout the school course.

(5) Most of the models described above will be found useful if not indispensable.

So far no mention has been made of methods of changing from British units to the metric system. The consideration of this important subject must be reserved for another article.

THE PRONUNCIATION OF LA

By J. L. PATON, M.A.
High-master of Manchester Grammar Sch

THE battle of the pronunciations is l won. The Classical Association h posed, the headmasters have dispos the Upper House of the Conference and th House of the Association have approved system by decisive majorities, and, so fa schools are concerned, the question oug settled.

This is the right procedure. As Bacon you look for despatch, the preparation shoul work of few, the experts; the debate and e tion should be the work of many. If it h nothing else, this piece of work alone wou justified the existence of the newly fledge sical Association, and it has done wisely with fundamentals.

It was natural that so far-reaching a should not be put through without opp One cannot drain a marsh without incon the resident frogs. Indeed, in this nicely l world there can be no advance without plus without a minus, no gain without pa price for it.

What is the case for the opposition? able spokesmen, and the case did no through feeble presentation.

There is first of all Bishop Welldon. already sufficiently hard, he argues. Wh the hardness of it by introducing artificial ties; why not let the boy pronounce Lati natural way as he does his mother tongu answer to this is: First, that the boy h natural ways of pronouncing his mother there is no fixed rule or principle about nunciation of English, and one of our chief in teaching a boy Latin is to give him idea tem and law, to make him apply princi English, spelling, pronunciation, everyt empiric and capricious; in Latin, pronu is according to spelling and spelling ing to pronunciation; each vowel, diphth consonant has a certain value; given cer ters one knows how they must be pron Secondly, as to the introducing of artificial ties, this argument carries us a little too fa not apply it also to the learning of French? Welldon, in his speech, scouts the notion ever being able to learn at school how nounce French properly, and cites from Dr in evidence a passage which was perhaps Dr. Arnold's own day. Why then attempt possible? Why introduce artificial diff If we are to be consistent we must teach " tu ees, ile est."

Dr. Gow's interesting speech at the Co dealt with the historic side of the questio no one would suggest that boys of the t century should be taught the English pr tion to prevent them from understanding vice of mass. The Westminster play is a for Westminster School, past and present;

it would take "Old Westminsters" s to accustom themselves to the new to make a serious reflection upon the (if one may use a Darwinian word) y a Westminster education. Probably y would be equal to the strain, if their is not.

rthy of serious consideration is the he chairman of the Incorporated Asso- Headmasters, Dr. Rendall, of Charter- s argument was that the adoption of omewhat paradoxically termed "the nciation" would create a breach be- n and English; if the old pronunciation a boy recognises more readily the Latin in his own language, such words as n, vicarious, ingratitude," and conse- e study of Latin reacted more vitally lly upon his understanding and use of tongue. Dr. Rendall's plea was that, as two systems of pronunciation existent we should recognise the existence of their respective spheres should be imited, the "old" pronunciation being schools where the chief consideration the "new" pronunciation in the uni- where regard should be paid to the cientific philology.

dall also pointed out that each Conti- on had adapted Latin pronunciation to honetic values; we did not attempt Chaucer according to the English on of Chaucer's time, we read it to our own pronunciation, so that it more real to us. Why should we the same principle to Virgil, Horace,

point of view which cannot be lightly But the advocates of the "new" pro- are ready to take up the challenge on d too. Confining the argument strictly ations between Latin and the mother re are three arguments for the "new"

ere is already a breach between Latin h which no system can bridge. The rivatives do not correspond in quantity tin originals. To take the words men- ove, we say *cīvīlisation*, Latin says say *ingrātitude*, Latin says *ingrātus*; *tude*, Latin *lātus*; other words at once emselves, such as *rēgent*, *māternal*, *expērience*, *exămination*, *ĕvidence*, *trĭ-* It is impossible, therefore, to have correlation between English and Latin to retain any pretence of scholarship

, it was pointed out at once that, as a fact, most of these English derivatives e from Latin direct but through French. scientific correlation will, therefore, be rench. If a boy is to gain any idea of language development, he must learn was spoken, French as it is spoken, it is spoken; he has then, at any rate, al on *which to work; he will* place in their right relation *bovem, bœuf, beef*; *canto, chanter, chant,* and so forth.

Thirdly comes a point which appeals specially to those who have to deal with the raw material which does not find its way to Charterhouse or Westminster. One of our chief difficulties in dealing with the elementary-school boy is the mispronunciation of the mother tongue. Dialects vary, but the problem remains the same all over the country for those secondary schools which are in touch with the people. The only way to cope with vulgarity of pronunciation is to make a new beginning, to start with a new language in which pronunciation must be a matter of conscious effort, or, in other words, to get back to phonetics. But the phonetics must be concrete, not abstract, and nothing helps us so much here as a language in which each sound is pure and simple, each sound is easy, and each is represented always by a definite symbol. Once a boy accustoms himself to hear correctly and speak correctly in Latin he begins quite insensibly to articulate better in English, to mind his h's, to disaccustom himself to the final *r* in *idea-r* or *Isaiah-r*, to give to the consonants their proper value, and to the vowels their proper purity. There is an analogy between the process and the way that the Greek script reacts upon the English handwriting. Many teachers have noticed how, directly a boy begins to learn Greek, there is a simultaneous and spontaneous improvement in his English handwriting: in Greek he has to form each letter separately and each letter carefully; the result is that his writing muscles, quite unbeknown to himself, transfer to his English writing what they have grown accustomed to in writing Greek. It is so with careful pronunciation of Latin, and it is so for the same reason. Each syllable has to be separately and carefully articulated in Latin, and the result is that there is less slurring and vulgar slovenliness in English.

But the great argument is uniformity, and the only possible uniformity is through the method prescribed by the scholars of the Classical Association. "Old boys" must shift for themselves: the dead past must bury its dead or else learn anew. Our business is with the present and the future, and to them our first duty is not to inflict upon them that bewildering uncertainty which was inflicted upon us. Many of the present generation have been hustled about from one system to another until it is a wonder that we have any notion of system left in us. We have said lines to one master according to one system, and read Cicero to another master according to another system; have passed from one school to another, or from school to university, and found everything unsettled and chaotic. The time past may suffice for this; we have had over thirty years of it. The intermediate schools of Wales took the matter in hand systematically and settled down to the new method without any difficulty; Scotland has always had it; it is time the predominant partner made up her mind and set her house in order. Let her move altogether if she move at all.

HOW TO READ AN AUTHOR IN CLASS.

By JAMES OLIPHANT, M.A.

THERE is hardly any branch of an English education that may not be associated with the reading lesson, and though the relation of the more formal aspects of linguistic study to purely literary appreciation may seem somewhat arbitrary, there are undeniable advantages in bringing them close together. The practice of isolating the lessons in spelling, writing, grammar, composition, and elocution from each other and from the reading of an author, and even of putting them into the hands of different teachers, is not to be defended. Language, after all, is a unity, and though it may be sometimes convenient to separate theory from practice, or the scientific from the æsthetic side, every effort should be made to maintain the synthesis. The use of specially prepared text-books, where words and phrases are taken out of their context, or piled up with unnatural iteration, to illustrate particular points of linguistic or syntactical theory, is apt to give a distorted view of the art of literary expression, and certainly destroys much of the pleasure which its study should afford. Such manuals, if not reserved for the teacher, should at least be put into the hands only of the more advanced pupils, who have done a good deal of reading. As in the learning of a foreign language actual specimens of its literature should be the basis at every stage, so in the study of the mother tongue the reading of an author should be made to gather up all possible lines of inquiry. At the time when a complete literary work is first taken up at school, which will probably be when the pupils are about twelve or thirteen, it is surely safe to trust to curing defects of spelling and phraseology through a growing acquaintance with good models, and the individual practice in oral and written composition that would naturally accompany it. In this view, the reading of an author in junior forms may be held to include parsing, analysis, etymology, and other similar exercises; but as these have their own methods of treatment, they need not be considered at present.

Keeping to what arises directly out of the reading lesson, we may find it convenient to class the lines of study under five headings:

(1) Elocution; (2) Meanings and Uses of Words; (3) Allusions; (4) Paraphrasing and Composition; (5) Literary Criticism.

All these are in some degree essential, if there is to be any adequate understanding of the author's meaning, and a full enjoyment of his artistic achievement. Yet it will rarely be found that they all receive due attention. One or another is apt to be crowded out, either through want of time and consideration or from lack of aptitude in the teacher. There is certainly a great disregard in our schools of the educative value of reading aloud. Yet it can hardly be questioned *that this* is the best way of introducing a class to *the study of a work of literature.* It is not only that every opportunity should be taken veloping the faculty of effective vocal expr the practice has a direct bearing on the a tion of the author's purpose and methods all, the written language is but a pale re of the spoken word, and silent reading c satisfactory substitute only for those wh had time to cultivate an imaginative s sound effects. Young people need the s of immediate sense-perceptions, of the ear as of the eye. At the outset of a secondary indeed, it can hardly be assumed that ever rect articulation has been acquired by a apart from the necessary corrections of inc errors of accent and pronunciation, ther distinct gain, both to speakers and to liste the audible rendering of a work of litera especially in the case of poetry or drama, the æsthetic intention is at its highest. I that the interests of all may be considere desirable that the teacher, who may be pr to have some elocutionary gift, should a his own contributions with the less matur of his pupils, and should, by precept ar cism, as well as by example, show how force of the author's meaning can best be out.

This preliminary reading aloud of the to be studied should not be interrupted questions or explanations that are not impe needed to secure the proper elocutionary ing, for it is important that the intellect emotional appeal should not be dissipated tachment of the parts. On the second r however, which may be taken somewhat by the teacher, the more detailed examinati with advantage turn frequently from on of treatment to another. The object no help the pupils to master all the particul culties that stand in the way of a complete standing, and there is an obvious saving and a gain in variety of interest, in takin as they come, whatever may be their natu one line it may be the meaning of some word, in the next the unaccustomed use of liar word, in the following line some histo geographical or literary allusion, in the figure of speech to be explained. Then ev and again the meaning of a whole senter seem somewhat obscure, and a paraphra will have to be supplied, or the connec tween one paragraph and another may ha traced. The best teaching here will which has the widest reach and the mo pected transitions, provided always that t trative and explanatory matter is really r and that as much as possible is got ou pupils, by leading them to rely on th resources.

A question arises at this point as to th and amount of the private preparation tha be required for such a lesson. It will be found best to have the preliminary re class before it is studied at home, and occasion then to clear up any general di

great to be left to the unaided efforts
. Of course, no line can be drawn
nction without reference to the age
rcumstances of the class, but it may
a general rule, that where access
suitable books of reference, a great
e left to the pupils' own initiative.
tated editions of the informative
ed, there is no value whatever
reparation, which is merely an
verbal memory; but if there is
that the pupils will have to
independent investigation, and
dgment in seeking for explana-
hardly be doubted that the effort
h making. There is, however, a
of preparation still in vogue in some
ch in most cases is certainly out of
not uncommon to find an acquaint-
subject-matter of a reading lesson
oral or written examinations, even
k is a record of purely imaginary
s not in the front rank of literary
is allowable to expect an intimate
the details of the plot in one of
tragedies or Scott's historical
uch questions as "What did John
r that?" or "Where did Traddles'
" show a misconception of the ends
ching of literature must always have

ins to be considered the somewhat
on as to how far a genuine æsthetic
e associated with the literature les-
s a great idea nowadays of empha-
le of English teaching, and, how-
y be the intention, there is no doubt
eal of what passes under the name
preciation on the part of young
ery little substance or value. There
ural reaction from the ultra-analytic
al methods with which the study of
ture was long infected through the
pedantic classical scholarship, and
is all for a more humanistic treat-
far as this demand merely expresses
young people should be introduced
ieces of literary art in such a way
feel their power and beauty, it is
highest respect. But beyond the
ation of works that are appropriate
al to the stage of development
is it to be effected?
d such as "The Revenge," which
to interest and move every boy and
m of the secondary course. What
r do to secure that this poem should
ngest impression? He can read it
with the fullest elocutionary effect
able of; he can help his pupils to
ite it for themselves; and he can
plify any words, or phrases, or al-
y not be fully understood. It may
ubted whether he can do anything
add to the emotional impression. If
he proceeds to draw attention to the technique of the poem—to explain its structure, its metre, its diction, its imagery—he is entering upon a very interesting and instructive, but purely analytical study, not directly connected with the appreciation of literature, which, except in its simplest elements, would in any case be suitable only for the higher forms.

Let us see how the case stands with a Shakespeare play, where the so-called critical treatment is most frequently attempted. After the text has been fully explained, and the dramatic effect realised as far as is possible through reading and declaiming in character, what is left to be done? Probably nothing that would add to the appreciation of the particular play that has been studied, and for those who are just being introduced to Shakespeare it would certainly be best to pass on at once to the treatment of others of his plays in the same manner. It is true that valuable exercises in composition may be found in the reproduction, both orally and in writing, of the impressions gained in reading the play. But the important point to be noted is that *these cannot be made the subject of direct teaching*. In so far as the material for the estimation of one of the characters is communicated by the teacher, or supplied by the annotations of the text, or even suggested by different members of the class for each other's benefit, it is worse than valueless. It is bad enough to be crammed with information that has been mechanically acquired, but it is much worse to be crammed with second-hand criticism, and to be misled into putting it forward as if it were the fruit of independent thinking. Of course, the teacher can give indirect help after the event. He can criticise the essay, showing where the presentation of the character has been misunderstood, and giving some aid towards forming sounder judgments for the future. This is the only sense in which the higher appreciation of literature can be enriched and quickened in the average learner, and teachers would do well to limit themselves to it until the latest years of a prolonged school life have been reached. There could be no greater mistake than to impose theoretic lessons on style, or reviews of literary history, on pupils whose reading has been meagre; the time would be far better spent in increasing their first-hand acquaintance with the masterpieces of literature.

The Study of Plant-life for Young People. By M. C. Stopes. xii+202 pp. (Moring.) 2*s.* 6*d.* net.—Dr. Stopes's little book easily falls into the front rank of the recent attempts to induce children to learn the main facts of plant-life for themselves by direct observation and reasoning. The author displays on every page her practical experience of the pitfalls which beset the path of the raw beginner in botany, and succeeds admirably in being lucid without any sacrifice of accuracy. The greater part of the book covers the usual ground of a first course of experimental botany, but part v., on "Plants in their Homes," is more novel, and will furnish welcome hints on outdoor work. The book is well illustrated by sketches and reproductions of photographs.

RECENT CONTRIBUTIONS TO THE STUDY OF CHEMICAL CHANGE.

By W. A. DAVIS, B.Sc. (Lond.),
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II.—THE PROBLEMS OF COMBUSTION.

IN a series of lectures given at the Royal Institution about the middle of last century on the "Chemical History of a Candle," Faraday taught that "the forces which hold the carbon and hydrogen together are so nicely balanced that the hydrogen is made to combine first, the carbon afterwards." The formation of smoke above the flame of a lamp or candle would in this way receive a satisfactory explanation. But recent work has shown that combustion is far too complicated a process to be explained by considering merely one line of evidence. During the past twenty years the problems it affords have been the subject of a discussion of almost metaphysical subtlety. In the present series of articles it is impossible to do more than draw attention to some of the principal results which have been arrived at by the chief workers in this field of inquiry.[1]

In teaching chemistry it has long been customary to illustrate the force of "chemical affinity" by such experiments as burning phosphorus in oxygen, sodium in chlorine, or by exploding hydrogen with oxygen. It has been usual to say that when a substance such as phosphorus is heated in oxygen above a certain temperature called the ignition temperature, combination occurs in consequence of the "affinity" of the two substances for one another. The view taken of chemical action has been the simplest possible one: namely, that the two substances combine together in virtue of a mutual attraction. As a matter of fact, however, chemical interaction is a more complicated business: not only must there be the "tendency" to combine—represented by the possibility of heat or energy being set free in the action[2]—but, in addition, certain conditions which allow of this energy being dissipated have to be fulfilled before the tendency can be transformed into action.

One of the earliest observations on the inability of two substances, possessing great "affinity" for each other, to interact, is that of Wanklyn, who, in 1869, showed that sodium would not burn in dried chlorine. This observation was confirmed by Cowper in 1883. In 1880 Prof. H. B. Dixon stated, at the Swansea meeting of the British Association, that, although an ordinarily prepared mixture of carbon monoxide with oxygen explodes violently when sparked, forming carbon dioxide, it is impossible t about interaction of the gases if the be carefully dried beforehand. The full tion of the work on which this stateme based was published in the *Philosophical actions* of the Royal Society for 1884. markable result was then established mixture of purified carbon monoxide wit fied oxygen could not be made to expl passing a torrent of sparks; but that if t explosive mixture were allowed to stand *fo seconds* with a drop of water the mix once exploded on passing a spark thro In 1885 Traube showed that a flame of c bonic oxide which burned in ordinary m was extinguished when plunged into air had been carefully dried by means of trated sulphuric acid. Dixon considere carbonic oxide "is incapable of direct with oxygen, but is burnt indirectly by with liberation of hydrogen." The stea supposed to act as a carrier of oxyge process of alternate oxidation and reductio

$$CO + H_2O = CO_2 + H_2,$$
$$H_2 + O_2/_2 = H_2O.$$

The assumption made was that hydrog oxygen are always capable of directly ing: "the union of oxygen and hydroge affected by the presence or absence of w

Shortly after Dixon's discovery of the bustibility of carbonic oxide, Prof. H. B showed, early in 1885, that the occurr other common actions was dependent presence of moisture. Dried carbon an phosphorus were shown not to inflame i oxygen: it was found possible indeed t phosphorus in an atmosphere of dried No result could be more striking, pho being usually regarded as the most infla of substances. Dry ammonia and dry h chloride when brought together do not to form a cloud of ammonium chloride that obtained when these substances or come together; whilst nitric oxide and ox a state of dryness can be mixed togethe out giving rise to the red vapour of n dioxide.

In discussing these results in 1885 Pro strong expressed the opinion that, c action being essentially *reversed electro* is necessary, in order that chemical acti occur in these cases, that a conducting be present containing an electrolyte. Th ficance of this conception has already be trated in one special case—the rusting o in the previous article in THE SCHOOL (January, 1907). If this view be admi correct it should be impossible to explode ture of pure hydrogen and pure oxygen, these substances are non-electrolytes: the action under ordinary conditions must b mined by some substance which gives ri conducting medium. Water *alone* woul sufficient to effect this result because pur

[1] For a more complete account of the problem, see Prof. Armstrong's lecture to the Society of Chemical Industry on the "Mechanics of Fire," May 15th, 1905; Prof. Dixon's address before the German Chemical Society, published in the *Berichte*, 1905, p. 2419; and for the general question of the "Nature of Chemical Change and the Conditions which Determine it," Prof. Armstrong's Presidential Address to the Chemical Society in 1895.

[2] The heat evolved by the union of phosphorus and oxygen to form P_2O_5 is 370,000 calories; that due to the action $H_2+O_2/_2=H_2O$ is 68,300 calories; whilst the action Na+Cl=NaCl gives 97,900 calories.

bability a non-electrolyte; but a trace or of a salt, by rendering the water conveying a current, would enable take place. Thus, on theoretical was predicted that if sufficiently puri- o ensure the absence of an "electro- moist hydrogen and oxygen should when heated together. After many btain the gases of a sufficient degree Prof. H. B. Baker succeeded in 1902 *ns of the Chemical Society*, vol. lxxxi., verifying this prediction, made many ously, by obtaining a mixture of the in the proportion of two volumes of o one of oxygen, which could be he temperature at which silver melts (that is, above 1000°) without exploding.

w that a mixture of highly rogen and oxygen does not heated.

The method used to prepare the gases consisted in electrolysing a solution of highly purified barium hydroxide. The hydrogen obtained in this way does not contain hydrocarbons, whilst the oxygen is apparently free from ozone or hydrogen peroxide. The mixed gases were collected in a tube of the shape indicated in Fig. 1. In order to ensure success, it was found to be essential that the ld be made either of hard Jena Bohemian glass. The tubes were ghly cleansed by heating in them of nitric and chromic acids, and y distilling through them for about purified water from the platinum ndenser. After allowing the tubes to were dried by heating them to red- ssing a current of air, dried by means sulphuric acid, through them. A plug phosphoric oxide was introduced, the f the tube drawn off, and the lower out to a capillary of about $\frac{1}{2}$ mm. A small piece of fusible metal was and the tube was exhausted. It was ted with the electrolysis apparatus, ases being roughly dried by passing h a tube of phosphoric oxide a foot When the tube was full of gas the al was melted and allowed to run into the capillary; the latter was then sealed, and the tube allowed to remain in the dark for varying periods. After ten days' drying, a tube prepared in this way was heated in a Bunsen burner flame side by side with a similar tube containing undried gas. In twelve experiments the wet tube exploded and the dried tube did not. In two experiments, where only two days' drying had been allowed, water was slowly formed in the dry tube, but although visible moisture was present, no explosive combination took place and only a slow combination occurred. In the undried tubes it was found that combination occurred between the gases, even at the ordinary temperature, when the tubes were exposed to daylight: it was, therefore, essential in drying the gas to keep the tubes in darkness.

The temperature at which a mixture of hydrogen and oxygen explodes under ordinary conditions has been stated to be about 600°. In Fig. 2 the arrangement is shown by means of which Prof. H. B. Baker succeeded in heating a mixture of the gases to a temperature above 1000° without causing an explosion. The hard glass tube containing the gases carries a thin coil of silver wire attached by fusion to platinum wires sealed through the walls of the tube. When the precautions already described were observed, it was found that the silver wire could be heated by means of a current of electricity until it fused, without an explosion occurring. If, however, a coil of thin platinum wire was substituted for the silver one in this experiment, an explosion of the gases always occurred when the temperature of the coil was raised by the current just above the point of visible redness. At this temperature platinum appears to exercise on the dry gases a "catalytic" influence which conditions interaction; but, on the other hand, it was found that the formation of water could not be detected at the ordinary temperature, platinum being then inoperative.

The essential condition determining the interaction of hydrogen and oxygen appears to be the presence of an electrolyte, such as water rendered conducting by the presence of a trace of an impurity. The same condition was shown in the previous article to be necessary before iron could rust in presence of air and water; and it is probably the same condition which has to be fulfilled before carbon monoxide will burn in oxygen. In the case of hydrogen the oxidation or burning is accomplished by the completion of a circuit, which may be represented thus:

$$\begin{array}{c|c|c} + & & - \\ H & OH.H & O \\ | & & | \\ H & OH.H & O \end{array} \quad \begin{array}{c} \\ = \\ \\ \end{array} \quad \begin{array}{l} \\ 2\,H.OH + \\ \\ \end{array} \quad \begin{array}{c} H.O \\ | \\ H.O \end{array}$$

Water made conducting by acid. — Hydrogen peroxide.

The hydrogen and oxygen may be considered as the positive and negative poles (as they actually are in Grove's gas battery), and the reversed electrolysis gives rise to the two products shown on the right-hand side of the equation, namely, water and hydrogen peroxide. Such a view of

the action explains the fact that hydrogen peroxide is always formed when a hydrogen flame burns in air; it can, indeed, be detected by playing the hot flame on ice and subsequently applying the titanic acid test for hydrogen peroxide to the liquid. That hydrogen peroxide does not usually accumulate in the water formed is due to the fact that it is an unstable substance under the conditions in which it is formed; giving rise to water and oxygen, and perhaps playing a part in the burning of the hydrogen by acting as an oxidising agent.

The burning of hydrogen is the simplest case of combustion that can be considered. Hydrogen is the principal constituent of ordinary coal gas, forming some 50 per cent. by volume; about 35 to 40 per cent. of coal gas is the hydrocarbon methane or marsh gas, CH_4. In the next article the operations which occur in the burning of this substance will be considered, and we shall then be in a position to deal with the case of Faraday's candle-flame which fifty years ago seemed to present so little difficulty.

ATHLETICS IN DAY SCHOOLS.

By HERBERT J. TIFFEN, M.A.
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NO one who read the article on "Sports without Prizes" in THE SCHOOL WORLD (May, 1906) can have failed to recognise the cogency of the arguments which the writer put forward. If, however, others have hesitated hitherto to follow the lead of Manchester Grammar School in this matter, it may perhaps afford them some encouragement to hear of the entire success of a similar experiment at the Liverpool Institute. A similar scheme of inter-form competition was tried, and its success surprised all observers. Not only was the number of entrants and of entries far more than doubled, but the interest shown by the school was far keener and more universal.

It was felt, however, that the encouragement of *esprit de corps*, though perhaps the most important of the aims of athletics in our schools, was not their only aim. They should also serve the direct purpose of discovering and developing certain capabilities with which nature has endowed boys, which in town life especially do not find elsewhere a chance of systematic development. Many a natural athlete passes through his school life without ever discovering that he can jump, or run, or throw, and even for those whose natural abilities in these directions are slight it seems wise to take some trouble to develop such slight talent as they possess. It cannot, I fear, be contended that in our day schools the annual sports, as generally managed, do very much to serve either of these ends.

In the boarding school it is different. The athletic grounds are generally close to the school, and the appearance of the jumping standards, together with the various preparations of the ground, announce that the time for the sports is near at *hand. Moreover,* in the lack of other separate individual interests, boys turn naturally to cussion of the prospects of the year and ing. The day-school boy living apart, a at a considerable distance from the school; feels these influences much less, and the n ing of notices and entry forms fails to br home to him. Even if he does enter his n difficulties of trams and railways cause tr be often altogether neglected, and witho ing it seems probable that the excessive of one or two days of sports will injure ra assist the natural development of his pow only boy who is likely to train at all is the has happened to win a race in the past, he will very likely do so with the feeling wise to conceal his actions from the knov his fellows, a frame of mind which, it is to say, it is desirable in every way to dis If a boy never has been successful and is as to his powers, he will pass the spor being of little or no interest to himself, only will not train but will not even ente races.

It is exactly such a boy, however, who most of our consideration. The pushin who enters for everything and revels in gratulations of his relatives and friends left to look after himself. A little adv methods of training and moderation in it is all that he needs, together with an o hint as to style and a reminder that otl claims and rights as great as his own. T ally sluggish or diffident needs a differ ment. He must be led by encouragement the necessary effort, and to discover tha has powers which it is worth his while to The chief difficulty is to induce him to tak step in training. Once this is taken he ably be able to continue in his cou especially so if he has the encourageme comrades to urge him on, but to natural ness or hesitancy the cost of this first st generally too great.

In order, then, to attain both these ends discovery and the development of athletic ties, a system of "form sports" was i at Liverpool as a preliminary to those of t at large. The boys of each form in the the school were allowed out in turn du hour of work-time on condition that sented themselves at the athletic ground some training there. This hour was al last hour of afternoon school, and the g given prevented the interference with h which might have occurred had it not beer When on the ground, the boys were pu some simple events, such as jumping, the cricket-ball, and short and long race case was there any attempt to attain to result, but the sport was no less enjoyabl and the twofold purpose was attained of every boy at least a little training, and o the form captains to discover which indi was worth their while to urge to ente school events. Moreover, the necessit ginning these form sports two or three

school sports served to bring more promi-
fore the other boys in the school the idea
time for the latter was at hand, and so led
lier commencement of systematic practice
l previously been the case. The form
emselves did not take more than an hour
nd therefore did not interfere with other
hich might be going on, while, on the
nd, the mere fact that they were in pro-
to a larger attendance of boys who came
n and then turned to cricket practice or
l training for themselves.
far these preliminary sports assisted in
g the successful result of the school
is difficult to say. The change in the
stem undoubtedly had great influence,
brilliance of the weather assisted; but it
ly be claimed that, at any rate, a few
covered in themselves powers which they
t aware that they possessed, and that
ere enabled to develop more fully those
with which nature had endowed them.
it is intended to continue the experi-
coming years with the hope that in future
al athletic sports may no longer yield
a return for the great expenditure of
uble, and money, which they must neces-
olve.

RSITY EDUCATION IN IRELAND.[1]

report of the Royal Commission on
rinity College and the University of
ublin, recently issued, is the necessary
ent of the work of the Commission which
901 to consider the question of univer-
ation apart from Trinity College. The
both has been to find some means of
g the claims of Roman Catholics to
ducation, the point at issue being that
uire a university or university college
Roman Catholic atmosphere, while the
of English democracy has been away
clusive denominationalism in university
n. The Catholic claim has been admitted
t by many successive Governments, and
re to satisfy it is fraught with much
and social danger, while the whole pro-
primary and secondary education is seri-
arded. It is regrettable, therefore, that
of these reports is wholly satisfactory.
1901 was discounted by the exclusion of
College from its scope, and the present is
ately so lacking in unanimity that on the
estion of a practical solution its general
negative.
ne secondary, but important question,
of the internal reforms of Trinity Col-
If it is, happily, unanimous. While the
ioners accord it high praise as a "satis-
organ for the higher education of the
lian Protestants of Ireland," they make
s recommendations which are generally

[1] ommission on Trinity College, Dublin, and the University of
al Report of the Commissioners. (Cd. 3311.) 8½d.

admitted to be necessary and calculated to improve it greatly. A mere enumeration of the principal points touched upon will show the width of their scope. They include the friendly relations of Trinity to other religious denominations and university colleges; the reconstitution of the governing body and council; the courses of study, election to fellowships, reduction of examinations, insistence upon residence, control of the Divinity schools, the encouragement of Irish and of post-graduate research, and the recognition of outside women's colleges.

On the main question five solutions are mentioned: (1) A modification of Trinity to suit Roman Catholics: this is dismissed as impracticable in view of the statements of the Roman Catholic episcopate. (2) A separate university which, although without tests, shall be satisfactory to Roman Catholics, with or without another university in Belfast: this is held not to be feasible. The other three are (3) the establishment of a new college in Dublin University suitable for Roman Catholics; (4) the establishment within Dublin University of three or perhaps four additional residential colleges, viz., the Queen's Colleges at Belfast, Cork, and perhaps Galway, with a new college in Dublin for Roman Catholics; and (5) the establishment of a duly equipped college for Roman Catholics in the Royal University as recommended by the Commission of 1901.

The question thus narrows itself down to the establishment of what we may call a new Roman Catholic College which will, however, be free from tests. Of the nine commissioners one, Mr. Kelleher, a Roman Catholic and Junior Fellow of Trinity College, objects *in toto* to this as unreasonable, gravely injurious to the interests of Irish lay Catholics, and likely to be dangerous at no distant date to the peace of the country. Three, Lord Justice Fry (the president), Sir Arthur Rücker, and Dr. Butcher, are decidedly for the last suggestion. A new college in Dublin University would lead, they think, to friction, jealousy, and a lowering of the academic standard. The federal scheme under Dublin University would have the same result, and has besides been objected to by all parties, by Trinity, by the Catholic hierarchy, by all the Queen's Colleges, and by the Catholic University College in Stephen's Green. Federal universities have proved a failure, and a federated Dublin University would tend to disruption, in the meantime doing Trinity cruel harm.

The other five commissioners, Chief Baron Palles, Sir Thomas Raleigh, Prof. Jackson, Dr. Douglas Hyde, and Dr. Coffey, on the contrary, approve of a federated Dublin University as the best scheme, but are not all of them equally decided. They are careful to explain that what they propose is not the ordinary idea of a university; practically each college would be autonomous, the university merely prescribing general rules for matriculation and appointing university examiners to assist the college examiners at

the final examinations for degrees so as to maintain a uniform standard. They think that in the present stage of the Queen's Colleges a federal university is a necessity, and while under their scheme Trinity would remain practically as at present, the other colleges would be raised to her level, and this would be impossible under the other scheme. At the same time, the other colleges would develop on more modern lines than Trinity. Chapels would be erected at private expense in each of the colleges. This scheme, it is agreed, will require the co-operation of Irishmen of different Churches, and without this will not succeed.

Prof. Jackson does not think this co-operation likely, and therefore refuses "to take the responsibility of recommending immediate action." Drs. Hyde and Coffey, again, while recommending the above scheme, have no objection to two teaching universities in Dublin.

THE TRAINING OF A NATION.

FOR some time past the physical side of education has filled an important part in the current literature of that subject. More and more clearly it has been realised that the intellectual and moral training of the individual can be achieved but imperfectly, if the physical side of his dual nature be regarded with indifference. With equal certainty it has been demonstrated that any educational system applied by routine methods and with equal rigidity to the intelligent and the mentally deficient, the sick and the healthy, the well-fed and the starving, involves—even if judged only by a standard of immediate "results"—a futile waste of misapplied energy. Still more recently, partly as the result of extended information and partly as a discovery following closely on the heels of latter-day legislation, the nation has been confronted by the fact that the majority of the children for whom it had undertaken to provide an education, both compulsory and free, are physically unfitted to benefit by the methods which it has ordained for their training.

The problem thus presented is a huge one, but not more vast than its importance: for no one at all acquainted with the subject can doubt that upon the courage with which it is faced and the means devised for its solution must depend the status and the welfare of the English nation in the near future. It is admitted that children must be adequately fed and clothed and cared for, safeguarded from preventable disease, properly treated in illness, removed from vicious surroundings and as far as possible protected from their influence, if their education is to be a practical good and its results worth securing. It is also granted that in very many instances the conditions presupposed do not exist, and cannot be ensured in the circumstances obtaining at present; and, further, that there is, besides, no inconsiderable number of children who, by reason of inherited disease, congenital imperfections, or defective de can be dealt with only by special adapted to their several capacities. T is one demanding national effort, if on sake of substituting a national asse timable value for an imminent nation How is it to be achieved—and that w stroying the self-respect of the pa weakening the sense of filial obligati offspring?

As would be expected, the case is by Sir John Gorst[1] in terms both pov lucid. His remedies are frankly soc character: but, as he points out, socialistic in principle than the free v and the free education to which the already committed; not more so, ind is the principle which lies at the he various "Grants in Aid" with wh legislation has familiarised us. But conclusion the reader may come to on the book is one which appeals to a far wider than the circle of the "p tionists." It deals with the makin marring of the manhood and womanh country. It treats in plain language an authority either personal or direc of all the important aspects of which is as many-sided as the human which it deals. It opens luminous illustration and suggestion, and ena see what is being done in other c grapple with the problem, how far th have been successful, and in what c contrast with our own attempts in si tions. Though the practical help might have hoped to gain fro examples, encouraging enough in th is somewhat discounted if it be true t ably the wild independence of the Bri would make it difficult to induce hir such a legal obligation" as is impli compulsion exercised" (as in Gerr the worker by a paternal and benevol ment compelling everybody to do tha prudent and thrifty would do of accord."

The book is one to be read and it could not be fairly criticised w sidering it in detail. But we may to take exception to its title. The the nation means nothing less than dren of all the parents whose aggreg the nation. Straining the phrase to the children of the relatively poor, thriftless, the idle, and the vicious, in value to little more than a mer —which one is the more inclined t cause the book stands in no need of advertisement.

If it be true that in the multitu cillors there is wisdom, the volu

1 "The Children of the Nation." By the Right Hon. 297 pp. (Methuen.) 7s. 6d. net.

flowing stream of books on school may bear more than one interpreta- all events, it is certain, since medicine s than education, a living and progres- ce, that the world must wait for very re meeting with the book which com- best of all its predecessors with the none of them. Dr. Porter has pub- expansion of his lectures to the school of Sheffield. The book is well illus- id forms a full compendium of more that with which the advanced teacher irly be expected to be familiar. It useful as a work of reference, and in this respect to such members of sion as naturally take a special interest ject. But it is open to the too common that human anatomy and physiology *taught* in detail, to any really useful by letterpress and woodcuts only. And, knowledge of the main facts, and of ificance, is admittedly essential to any handling of even the rudiments of ects by the teacher, it seems scarcely ply that mere book-learning so detailed te for the mental equipment of those me and energy are already heavily the matter were reduced by one-third lk and printed in type proportionately would still better meet the needs of whom it is intended.

pers reprinted by Dr. Mackenzie in his of the School Child"[2] are pleasant to reason of the restful type employed; nformation they convey is easily assimi- omewhat diffuse in form. They might a useful commentary on some other more detailed and more dry; for they ot a little valuable information pre- terms almost pleasantly conversational. again we may doubt whether the ally means what he implies; as when, ing that "properly regulated physical ot only promotes growth, but is essen- " he adds, "by exercise I mean irre- exercise—which is 'play'—not re- exercise, which is 'work.'" The hild is, fortunately, not an introspec- vst; but what becomes of the moral s—and, indeed, the "physical regula- school games, if the cricketer, for be irresponsible to his house or his his captain, or to his own self-respect? ducation of the parents is the neces- llary of an awakening to the signifi- ll that is implied in the true education hildren. The Home Education Series good work to this end, and this[3] is best of its issues. There is no parent ly to be the wiser for reading it, and no should be the better and the happier in consequence. There are other forms of knowledge both necessary and useful: that which may be learned from these pages is such as makes for the suavity as well as the wisdom of human intercourse.

ygiene and the Laws of Health." By Dr. Charles Porter. u-trations. (Longmans.) 3*s.* 6*d.* net.
th of the School Child." By Dr. W. L. Mackenzie. 120 pp. 6*d.* net.
dies in the Formation of Character." Vol. v. Home Educa- 451 pp. (Kegan Paul, Trench and Co.) 3*s.* 6*d.* net.

EN HOEXKENS ENDE BOEXKENS—A REVIEWER'S FANTASY.

I SAT in my library, a parcel of books at my feet, and looked round for a motto for an unorthodox reviewer. And my eye fell on the words written above, familiar to the readers of the life of Thomas à Kempis. I must have dozed; for the books stood up round me open, a curtain filmed itself before them, and (as we have all been to the play at Christmas time) two bars of curtain music sounded, and the stage was revealed.[1] Enter from left "The Scalp Hunters," price 1*s.*, dressed in red, and gently put forward by Mr. Henry Frowde. With many illustrations accompanying him (all belonging to the Boy's Classics) he bowed sternly to "Captain Singleton," who, stolen by gipsies and forced to wander, was now continuing his wanderings over the stage. Though the Captain belonged to the same series he was much older than the other, and looked on him as a youngster. The shadows of Reid and Defoe, assured of immortality, enwrapped the two. The audience applauded and the figures faded. Before they had gone, any number of Selections belonging to three old ladies named Epochs came dancing on. There were the Milton crew, the Spenser crew, and the Shakespeare crew. Arranged by their Epochs and under the editorship of Mr. Stobart, who had had them dressed by Mr. E. Arnold for eighteenpence the set, they sang, danced, and recited. I heard "Come live with me and be my love," "Forget not yet," and Echo's song (off stage) "Sweet echo, sweetest nymph." They were accompanied by Introductions so clear that you could see right into them, and each had a bag of notes. Prose Selections danced less lightly but quite gracefully beside them, and among these I saw Lyly with his graceful bow, and dear old Sir Thomas with his inke-horn. I was just getting out my commonplace book, when Mrs. Barnett looked from the prompter's box and requested the orchestra to introduce her "Golden Numbers," a long procession of nobles, marshalled very carefully and arranged for one and fourpence (Sunday dress, two and six) by the costumiers, Messrs. Longmans, Green, and Co. The orchestra looked doubtful for a moment, but when the editor murmured "Dekker, of course," they comprehended and struck up

Art thou poor, but hast thou golden slumbers,

and all the audience shouted, for we knew what rhymed with "slumbers." On they came—Father Gilligan, Goblin Market, the Requital, Kubla Khan, with many others not so well known, and as the last one passed out and left

[1] We can assure our readers and the publishers that the reviewer *was* awake. Please put down this stage-business to the influence of Pinero and Barrie.—Eds. SCHOOL WORLD.

the stage empty, the last bar of the music whispered,

O sweet content, O sweet, sweet content.

I was stepping forward to thank them when a trumpeter dressed in Elizabethan type announced "a Pageant of Elizabethan Poetry by Arthur Symons." I knew this would be a good show, so I left my speech unspoken. It was, as Mr. Symons and the trumpeter told us (*sotto voce*), a "happy tumult," and all the passion of birth and love, of dance and death, of praise and mockery, went singing by. Of course, the planets were all there; but the lesser stars, Campion and Donne, and Greene and Nash, had their candles lighted too, and Sidney, "the complete lover, the perfect youth and knight," held high a torch, looking if Stella could anywhere be hidden. He found her not; yet round him, in the silences of the music, floated a lovely line, "My true love hath my heart, and I have his." The whole of the Pageant could be had, bound in antique board by publishers named Messrs. Blackie—I think they said it cost 6*s*.

The stage was for a moment empty, but some quite unfamiliar faces came peeping from the wings and sliding from the flies. I rose to drive them off when one of their number told me they were Minor Poets, and that Mr. Churton Collins was keeping them in order. At this I withdrew, for I knew that if anyone could deal with a minor poet, it was Mr. Collins. Mr. Edward Arnold had printed the crew in a cheap edition. I could not catch all of the Greek motto declaimed by the compiler; and when I looked it up in the Anthologia, I found Mr. Collins or Mr. Arnold had made a mistake in the Greek (I like finding out Mr. Collins in a mistake in Greek- he has such an eagle eye for other people's). A list of errata was read out before the show began, but the erratum in the Greek slipped by, unnoticed. The Preface, which spoke for xxii pages, defended the minor poets ably; but I must say I was more interested in those who preceded the sixteenth century than in those who followed. The price of the lot was 3*s*. 6*d*.—poor minor poets. Some very beautiful figures, hitherto quite unknown to me, walked, with new pride, in the throng. Mr. Collins had summoned them from sleep.

Then, with nothing to herald her except a pageboy called Stopford Brooke's "Primer" (stuffed so full of facts that they stuck out of him like needles), there walked on a graceful lady (pp. 1–973), for all her size most beautiful, who explained in a modest preface that she was only an attendant on the page, an illustrator, so to speak, of his famous primer. (N.B.—The pageboy himself had written an Introduction for her.) Her name was Kate M. Warren; the price of her book was 7*s*. 6*d*. net; and Mr. Archibald Constable had printed it on thin paper, and had otherwise prepared it excellently. There are a few books (like "Eothen" or the "Canterbury Tales" or Herodotus) which I should like to have written; but I never came across an anthology which I would *have* desired to compile more than this—not even *the Golden Treasury*. Its chief charm was its earlier pages, for I did not see the "Ni Maid" until page 250. It passed in minu from the stage, and the pageboy kept talkin it—unnecessarily, I thought, for the book own recommendation; I lost my heart to

Then, with a final clatter, three books c arm in arm (R.U.E.), all critical, with e fixed. One criticised "English Literatu the Norman Conquest to Chaucer." Th 7*s*. 6*d*., and Prof. Schofield of Harvard work with the pen of an artist and the e lover. It took him 500 pages, and then he hadn't finished. But, bless you, how h on. When he wasn't very learned—he s have read everything in French and written on English—he was very delight we not only had excellent advice from h admirably done translations from out-of-Romances. I went to the stage door t him personally, but I found he had alread for the States—where they write so good books on English literature. Usua ask the Messrs. Macmillan to publish the as in this instance; though Messrs. M have plenty of other work on their hands, decided to go and learn old French at that I could understand old English. S be thou my guide.

I was rapidly brought back to England English gentlemen, Mr. G. E. Hadow W. H. Hadow, of Oxford, who were call "Oyez, oyez, oyez. We allowed Prof. Sch go first, because he is an American; but present you from the Clarendon Pres 3*s*. 6*d*., in 350 pages, with the 'Oxford T of English Literature,' first instalment you have not only the necessary extracts, and clear introductions to them, so that understand what you are reading. We g ideas on literature and inspiration. Read and read again." Afterwards I discover said all this after reading their admirable

The stage darkened, and the gentlem had brought on the fantastic Eliz Pageant returned (Mr. A. Symons) to i to us a book which needed no ligh the limes or from the headlights. cated to George Meredith (the so-calle scure" novelist), this volume was an "I tion to the Study of Browning" (the " obscure" poet); and long ago, in anoth it had received the praise of Pater and of ing himself. I hastily looked through pages, and wherever I looked I saw Then I took off my hat and wished it an il ing journey among the many who, havi own interpretation already, will be glad to take Mr. Symons's hand. Mr. Dent, w lished it for 3*s*. 6*d*., just had a moment to spare, and was present on the stage, bu phone call from Everyman took him awa he had time to speak. As Mr. Symons book away the orchestra began:

At the midnight in the silence of the sleep t

and I recognised "Asolando." So I awok was not a dream.

FOR THE ENGLISH LESSON.[1]

volumes are welcome signs of the in-
t in English which exists both at home
in the United States. How methodical
g of composition is in America appears
he books of the Macmillan Company;
hink it too methodical. All the gram-
on us the impression that grammatical
urgently requires simplification and
nition. The application of "comple-
example, to the object of a transitive
to us to obscure the difference in force
licate in "He becomes a soldier" and
becomes a soldier." The treatment of
peculiar. One writer regards it as
tive; another says that its use as a rela-
rate. The truth is that it is interroga-
ntence like "Tell me what you saw,"
in Longfellow's "Things are not what
" and in thousands of other instances.
en we find "doom" *derived from*
we wish writers of grammars
niliarise themselves with scientific

ts of the "Progressive Course" are
; they are well planned, and contain
exercises. But the writer, seeking, we
be easily comprehensible to children,
ous statements, as "A phrase does not
erb." If, as he says, "to be" cannot
licate, what of its use in "Such things
"? If there is a demand for lists of
hey should be carefully revised and
to date.

ce Analysis" is a thoroughly satisfac-
its explanations and exercises are clear
e. We are glad to see the proper dis-
de between the objects in "He says
me'" and "He says that he will

rpenter's scholarly "English Gram-
ke his other works, well proportioned
arranged. He is least happy on the
e his definition of tense should allow
forms, but his paradigm presents six.
it exclude "am loving" while it in-
ve loved"? His threefold names for
ations—"regular or weak or conso-
"irregular or strong or vowel"—
xture of methods of division that do

not coincide. Grammarians had better discard "strong" and "weak," except for historic purposes, and, if they use "regular" and "irregular," use these terms rationally.

"The Class-teaching of English Composition," intended for girls, will supply useful material and hints. The chapters on oral composition and the use of pictures are particularly good. Still, it is incomplete when compared with the masterly presentation of the carefully graded course in "Elementary Composition" and "Rhetoric and English Composition." The spelling in these and in the other American books is a drawback. Besides, many of the subjects for composition drawn from American history and life are mysterious to our boys; *e.g.*, "Describe the kitchen after a candy pull."

The two books on précis writing are designed to show how to treat official documents, and may be described as technical. They contain interesting and practical introductions, as well as plenty of material for exercises.

Prof. Emerson, whose longer works on the English language are well known, intends this "Outline" for the general reader, and has avoided abstruse points. Exceptionally interesting are the chapters on the language in different centuries, phonetic change, and spelling. Excessive condensation is responsible for a few misleading statements; *e.g.*, that adjectives have no inflections.

In striking contrast is Prof. Wyld's manual, which, with Germanic industry, discusses the deepest problems of English philology and is consequently only for advanced pupils. It is one of the most important books published on the subject in recent years, and is by a writer thoroughly versed in the latest researches. This is manifest from his chapters on sound change, the Aryan race, Grimm's law, analogy, and early borrowing from Latin. We think Prof. Wyld somewhat hard on those who are not phoneticians. Phonetics, the importance of which we fully recognise, should be valued as a servant, not as a master. All the chapters are provided with references to sources of information. This is exceedingly helpful, but should not take the place of a full treatment of certain points. The French element in Middle English, for example, is summarily treated, and the reader is referred to Skeat's "Principles" and Paul's "Grundriss," works which may not be accessible to everybody. Is it prudent to use "Germanic" to designate the hypothetical ancestor of Gothic, English, and German? We consider it confusing to give "Germanic" a meaning at variance with the established usage of "German." On the whole, however, Prof. Wyld has made a valuable contribution to the scientific method in linguistic study.

For any who wish to plan a complete course in English we suggest the following selection: (1) "Sentence Analysis," (2) Carpenter's "Grammar," (3) "Elementary Composition" or "Rhetoric and English Composition," (4) Emerson's "Outline" or Wyld's "Historical Study."

Course in English Grammar and Composition." Part i. nd Boyd.) 6*d*. Ditto. Part ii. 144 pp. 9*d*.
lysis for the Lower Forms of Public Schools." By one "The King's English." iv+62 pp. (Clarendon Press.)

mar." By G. R. Carpenter. xvi+213 pp. (The Mac-) 3*s*. 6*d*. net.
ching of English Composition." By the Principal of Liverpool. vi+95 pp. (Longmans.) 2*s*.
Composition." By D. F. Canfield and G. R. Carpenter. e Macmillan Company.) 2*s*. net.
English Composition." By G. R. Carpenter. xviii+ cmillan Company.) 4*s*. 6*d*. net.
écis Writing." By A. W. Ready. viii+326 pp. (Bell.)
Précis-writing." By R. V. N. Hopkins. vi+200 pp.

History of the English Language." By O. F. Emerson. cmillan Company.) 3*s*. 6*d*. net.
dy of the Mother Tongue." By Prof. H. C. Wyld xiii+ .) 7*s*. 6*d*.

TEACHERS' NOTES ON BRITISH HISTORY, 1688–1906.

By C. S. Fearenside, M.A. (Oxon.).

II.—Britain and Europe, 1688–1748.

IN this series of Teachers' Notes I shall, in order to save space, suppress one or two features of the former series, containing information which is now readily accessible elsewhere: for instance, a collection of notable sayings ("for talks or problem work"), such as those which won a good deal of approval in the first series of these Notes, can be obtained for 1688–1715 in the Teachers' Notes in The School World for November, 1900, and for 1714–1848 in two books by Mr. J. S. Lindsey ("Problems and Exercises in British History, 1688–1832," and "Students' Note-Book of European History, 1789–1848"). The bibliographies and topical and chronological synopses in those books give a great deal of help (designed expressly for teachers) in choosing books to read and in checking the results of reading: in these columns, however, I shall try to arrange matters in teaching rather than in testing order. Of the numerous manuals meant for pupils of school age, the most compact, comprehensive, and trustworthy known to me—though in mechanical equipment it leaves much to be desired—is Prof. T. F. Tout's Third Part, dealing with 1689–1901 (Longmans, 2*s.* 6*d.*).

I purpose to borrow hints freely from the examiners who have dealt with this period for the Oxford and Cambridge Locals, Joint Board, London Matriculation, Scotch Leaving Certificate, and other examinations, and to deal side by side with British and Foreign History- in accordance with a growing and welcome tendency in school curricula—and to attempt the part ordination of history with geography and ture. Such a combination of subject sidered with reference to their antecedent with still more reference to the things of to should form an ideal course of study duri closing years of the secondary-school curri and presumably Lord Acton had something sort in his mind when he wrote to the contri to the "Cambridge Modern History": recent past contains the key of the present

Our first period embraces the two gene following the Protestant Revolution (1688- The most obvious political concern of tho generations was clearly whether that Revo like its predecessor, was to be undone by storation: the Forty-five finally decided tha tion in the negative. Corresponding to th British Succession question in British hom tics were the questions of Spanish, Polis Austrian Successions which loomed large great wars of the period. And again, loo little more below the surface—*i.e.*, below t standing events which would be discussed clubs—we see the development of *constit government* in Great Britain, on the bas party cabinet, going on simultaneously w rise of powerful *absolute monarchies* in Rus Prussia. For these deeper aspects we mu to such stimulating commentators as I Seeley, and Acton—who each provide, in every other sentence, thoughts suitable Sixth Form essay: here we have to deal with the *narrative* stage of history, whic needs precede the *analytic* stage.

A. British History.

(i) William of Orange, 1689-1702.

(1) Personality: ancestry; relation to Dutch parties and to Stuarts; predominant interest in international politics; constitutional restraints and difficulties in his various dominions, continental and insular.

(2) English Constitutional Restrictions set forth in *Bill of Rights*, **1689**, and *Act of Settlement*, **1701** (N.B. their occasions and differences), in *Mutiny Act* and *Triennial Act* (N.B. diverse meanings of "triennial"). *Persons:* Somers, Locke.

(3) Revolution: differences in causes, course and results in the Three Kingdoms; what parties (*a*) got, (*b*) did not get, what they wanted. *Terms:* Scottish Kirk, Penal Code. *Persons:* Halifax, Dundee, Tyrconnel, Sarsfield.

(4) Finance: meaning and significance of Appropriation, Credit, Bank of England, National Debt. For facts see Macaulay; for constitutional bearing see A. V. Dicey, ch. x. *Persons:* Montague, Newton.

(5) Parties: meaning and recentness of names *Whig* (Scots) and *Tory* (Irish); differences as regards both political theory (Powers of King and Church) and supporters (Landed *v.* Monied Interest; Churchmen *v.* Nonconformists). *Terms:* Junto, Censorship, Licensing Act, Tacking, Impeachment, Attainder. *Persons:* Sancroft, Shrewsbury, Fenwick, Defoe.

B. Foreign History.

(ii) Louis XIV.'s Supremacy, 1689-1700.

(1) War of Grand Alliance (or British Suc 1688–97; considered as the first stage of the 'Hundred Years' War" in Seeley, "Expan England," I., ii. (Macmillan, 4*s.* net).

(*a*) *Louis XIV.'s Object:* Supremacy at Ho Abroad; imitation of his domestic policy common his neighbours, and one cause of Protestant Revolt

(*b*) *Various Motives of his Enemies.*

(*c*) *Theatres of War:* Sea (Beachy Head, 16 Hogue, 1692) and Land (Scotland, Ireland, Flande

(*d*) *Peace of Ryswick*, 1697: why made; terms; to what extent a draw and "a truce rather than a

(2) Peace Interval, 1697–1701: mainly occupi negotiations about the Spanish Succession.

(*a*) Component Parts of the Spanish Monarchy were they and how did they come together?

(*b*) Claimants: their claims and the objections t formal and real.

(*c*) Partition Treaties, 1698, 1699: terms, motives,

(*d*) Death of Charles II., 1700: why did Loui throw over the Partition Treaty and adopt Charles and why was William at first compelled to ackn the Bourbon as King of Spain? *How did the c directly concern the British Kingdoms?*

In both columns here the ordinary text-books largely follow the Whig tradition of Hallam and Macaulay: many fresh and illuminating view can be obtained from Boutmy's "English Constitution" (institutional) *Seeley's "British Policy"* (international), and especially Acton's "Lecture on Modern History," xiii., xiv. (who deals with both domestic an aspects and exposes mercilessly the want of clear principle a scruple in all the leading persons and parties).

(iii) **Queen Anne, 1702–14.**

PERSONAL CHARACTER: amiable; strong an" (Queen Anne's Bounty); and dependent *Persons:* Sarah Jennings, Abigail Hill.

HISTORY: the gradual development of Anne's isters into a Whig Ministry (or Junto), and placement in 1711 by a Tory Ministry, both ding differences at the time between the two *sons:* Marlborough, Godolphin, Harley (Ox- n (Bolingbroke).

IN'S UNIFICATIONS: both to be connected ish Darien Scheme, 1699.

ottish Union, 1707: differences from earlier ted or achieved; motives for determining its shaping; limitations to the completeness of *either in form nor in fact an absorption of England.*

dian Union, 1708: amalgamation of the rival English Companies into a united company; , at the time; possibility of European con- foreseen.

QUESTIONS: the Tory standpoint in Church trated by the *Occasional Conformity Act,* nd *Scottish Lay Patronage Act.*

ATIVE LITERATURE: for Politics, Defoe's ay with Dissenters," Arbuthnot's "John Swift's "Journal to Stella"; for Society, Essays," especially the "Coverley Papers." ackeray's "Esmond."]

The principal campaigns of the period are shown in xxxi. (with useful notes), and in Putzger, xxiiia. (with coloured patches marking changes of territory). The atlas companion to Alison's "Marlborough" can now be obtained at a low price.

(iv) **The Spanish Succession and the Baltic Wars, 1701–13.**

(1) VARIOUS MOTIVES OF THE ALLIES: Marlborough the connecting link and mediator.

(2) THEATRES OF WAR: England directly concerned with Sea (Gibraltar), Netherlands (Ramillies, Oudenarde, Malplaquet), Bavaria (Blenheim), Spain (Almanza), and North America; not directly concerned with fighting in Cevennes (Camissards), Italy, and Upper Rhine. *Chief Persons:* Eugene, Villars.

(3) THE RIVAL CLAIMANTS, Charles and Philip: differences in their leading aims and in the attitude of the various populations of the Spanish dominions to them.

(4) CRISIS: effects on the political situation of Marlborough's Fall and of the succession of the Archduke Charles to Austria and the Empire, both in 1711.

(5) RESULTS OF THE WAR as determined at the Treaties of Utrecht (1713) Rastadt and Baden (1714), collectively known as the *Peace of Utrecht.* The number of the separate treaties testifies to the differences of aims among the "High Allies."

(6) GAINS: what did Great Britain gain by the war (territorially and otherwise), and were her gains as great as she had earned or might reasonably have expected to get? Terms of *Asiento.*

(7) THE NORTHERN WAR between Charles XII. and Peter the Great definitely replaces Sweden by Russia as the dominant Power on the Baltic. N.B.—Sweden was much larger, Russia much smaller, then than now.

(v) **The Whig Peace, 1714–40.**

ELF SUCCESSION: the reasons for and against 1 law and its improbability as a fact; the Fifteen; the preventive measures known as 715) and *Septennial Act* (1716). *Persons:* d, Mar, Forster.

RSONAL UNION between Britain and Hanover: nal (see *Act of Settlement*) and international and Verden) difficulties.

WHIG SCHISM, 1717–20: concerning foreign *ns:* Stanhope and Sunderland *v.* Walpole. *terests Act, Peerage Bill, Declaratory Act*

SEA BUBBLE, 1720: the speculations of the mpany (to be connected with the Asiento and r of Jenkin's Ear), to be kept distinct from tures of the period.

OBINOCRACY, 1721–42: Walpole's striving for e and abroad, even at cost of good schemes Halfpence and *Excise Bill* (1733); his insist- net solidarity and his own premiership; in- ueen Caroline; opposition of the Prince of head of the *Patriots* and the *Boys. Persons:* eney, Bolingbroke.

ATIVE LITERATURE: Swift's "Drapier's "Gulliver's Travels"; Bolingbroke's "Idea King"; Wesley's "Journal" (for rise of

(vi) **The Age of Adventurers, 1715–40.**

(1) DISCONTENT WITH UTRECHT SETTLEMENT, 1713–25: whether at idea or actual nature of partition arranged by the Great Powers over the heads of the rival claimants, Philip and Charles, who did not finally accept the partition until 1725. *Questions:* Sardinia *v.* Sicily; Gibraltar; possible union of France and Spain; Bourbon Family Quarrel (until 1731). *Persons:* Elisabeth Farnese and her advisers, Alberoni and Ripperda; Regent Orleans and Dubois.

(2) END OF NORTHERN WAR at *Treaty of Nystädt,* 1721; Charles XII.'s Jacobite Schemes; his death followed by oligarchic revolution in Sweden.

(3) CHARLES VI.'s TURKISH WARS and his Preoccupation with his *Pragmatic Sanction.* N.B.—Importance of Frederick William I. of Prussia, sometimes called "the real maker of Prussia."

(4) FLEURY-WALPOLE UNDERSTANDING holds fast, despite the strain of the *First Family Compact* (1 7), the settlement of Georgia (1733), and the War of the Polish Succession.

(5) INTERNATIONAL DOCUMENTS: care must be taken to distinguish between the several treaties of Vienna, and between the various temporary "alliances" known as Triple, Quadruple (1718), and Hanover (1725).

(6) Map-work: the growth of the outlying Bourbon possessions in Italy.

Walpole and his Successors, 1740–8.

WALPOLE, 1742, due to weariness of one- of dull peace, as well as to his lack of zeal ster. *Rule Britannia* dates from 1740, and pical of the moment.

TION OF WALPOLE, after a serious defeat in

(viii) **The Wars of "Austrian Succession," 1740–8.**

The following wars, though contemporary and sometimes involving the same parties, are to be distinguished as regards *causes* and *theatres.*

(*a*) **British Wars:**

(1) BRITAIN *v.* SPAIN, 1739–48: "War of Asiento or of

House of Commons, the first definite recognition that a Ministry requires support of Commons as well as Crown (see Mr. Mackay's "Walpole"), but his retirement does not involve the retirement of his colleagues.

(2) CARTERET'S ADMINISTRATION, 1742–4: an interesting contrast to Walpole's as regards both politics (he depends solely on King) and policy (he favours an active intervention on Continent). Pensions Wilmington, Chesterfield.

(3) PELHAM'S ADMINISTRATION, 1744–54, ends the Second W[illegible] S[illegible] by making places for all the important W[illegible] [illegible] the most uneventful in all M[illegible] H[illegible]

(4) [illegible] after a promising beginning, [illegible] was followed by [illegible] legislation [illegible] Peerage, Hereditary Jurisdiction, [illegible] Scots Law, Cumberland

(5) [illegible] Charles Edward's [illegible] Gardiner and [illegible] Pelham's [illegible] [illegible]

[illegible]

[illegible]

[illegible]

Jenkin's Ear." Only events: capture of Porto-B[illegible] Anson's Voyage.

(2) BRITAIN v. FRANCE, 1744–8: did not be[gin] Austrian Succession was virtually settled, and w[ar] in *India* (Clive) and *Canada*, as well as at *sea* and in *Netherlands* (Fontenoy).

(3) **Non-British Wars:**

(5) AUSTRIA v. PRUSSIA: the Silesian Wars—[1]740–2 (ending with *Tr. Breslau*), the second, 174[4] ing with *Tr. Berlin*: the most notable of the w[ars] a military standpoint, owing to sudden emer[gence] Frederick II. of Prussia.

(4) HABSBURG v. WITTELSBACH-WETTIN: "W[ar of] Austrian Succession," strictly so called, 1741–5. G[eorge II.] concerned, chiefly in his capacity of *Elector* and [Prince] of the Empire, as ally of Maria Theresa: hence [Treaties of] Nymegen and Convention of Hanau 1743.

(5) SPAIN v. AUSTRIA, 1741–8: mainly fought [in Italy] [illegible]'s a phase in the long Bourbon-Habsburg [struggle]

(6) SWEDEN v. RUSSIA, 1741–3: ended by Tr. [illegible]

(7) FRANCE v. NETHERLANDS, 1744–8: B[attle of] [illegible] was still going on when [illegible] but not much active at Treaty of [illegible]

[illegible]

[illegible]

n essential part of a training in English. It iterature lessons what a laboratory is to the ons, and should be used in the same way, viz., l purposes.

scussed the English curriculum at great length eems to me to be so fundamental in its import- e can help the girls to express themselves well, eir own language, and to appreciate the best rature, they will be dowered with a gift for will be invaluable. The most the best teachers o lay the foundations and to inspire in willing own love of literature. But to those who can is the opening of the gate leading to the in- pleasures of literature and art, and they will t the labour spent in getting to the threshold. says: "All spirits upon which poetry falls open to receive the wisdom which is mixed with its

on to the art of expressing ourselves in our ge, it is obvious that the art of using foreign hould also find a place in an ideal curriculum. foreign languages for communication with we want them because they open up new fields ; we want them because they give access to s of thought. These advantages are at present the fullest degree in the French and German which is the reason for selecting these languages t school. The aim in teaching should be the English, viz., to be able to speak, read, and nguage, and not to make it a mere preparation . French should be begun first, in my opinion, be taught by a Frenchwoman conversationally ning.

rd to the vexed question of Latin, opportunities afforded, of course, for the study of this ut it should not be compulsory.

group, science and mathematics, trains such observation and concentration, accurate state- logical reasoning. Such faculties should be the plastic time of youth; and when the time ach boy or girl to do his or her part in the e world, they will be found furbished up and se.

ct of a training in science is to encourage a bit of mind, which observes all that goes on in world with a desire to understand it. The should be laid in the little ones in the teach- is called nature-study. It is a wide term, and ent text-books have been published suggesting ich such training should be conducted; but, as fact, each really good teacher will make out es, and these must differ greatly according to . Nature-study leads up to botany, which, if ractically taught, adds greatly to the interest valks and holidays. All science teaching should , and should place a girl in a position to find ng for herself rather than to accept results told again, a good teacher would not be bound by r series of rules laid down for teaching, but de for herself how far heuristic teaching is

All science lessons should at first be practical, th common life, and all experiments drawn as ible from daily life, and for girls these experi- ld be in touch with domestic life. Later, the erimental science may give place to specialised sics or chemistry, or both.

t of the science work, every girl should learn something of the laws affecting herself and her structure, laws of health and hygiene, and some elementary physiology. The health and physical condition of the children of the future depend on the girls of to-day, and it is therefore necessary that they should be trained to know something of their responsibilities and of the care of home and children, which may fall to their lot.

I have called my next section handwork, for want of a more exact name. It enters into most lessons from the Kindergarten upwards, and might be made of still more importance. Boys and girls are often awkward and the reverse of "handy," and need training to use the brains to direct the hands.

Handwork should be a part of lessons as far as possible, and in this we might take a hint from American schools. In history, for instance, the children should make models of dwelling-houses, and in geography more still might be done.

My term handwork also includes domestic arts, as sewing and cookery. All girls should learn to sew, and this should be an essential part of an ideal curriculum. The question of cookery is different, and it should not be begun too young. If a girl is accustomed to intelligent handwork, and has developed to a certain extent the facilities of handiness, careful observation, and accuracy, she will be able to learn to cook later. Every school should provide cookery lessons, but I am inclined to think they are best given to girls of about sixteen or older.

Next, to deal with æsthetics, such as music, singing, and drawing. All these subjects should be included in the school curriculum. In drawing, the visual, mental, and manual powers are all cultivated, and, at the same time, the memory is strengthened and the inventive and imaginative faculties are stimulated. Drawing should not be treated only as a separate subject, but should also enter into many other lessons; and children should be encouraged to treat it as a means of expression and to illustrate stories read or scenes from history and so forth.

I think, too, that an ideal curriculum would always include lessons which help the children to appreciate art, and these should be begun quite young, as early impressions count for so much and are so lasting.

There is no need to insist on physical culture as a necessary part of a school curriculum nowadays, but sometimes the ends in view are lost sight of. We do not aim at turning out athletes, nor at preparing a good school team to win matches in games, but at the development of a sound and healthy body for every girl.

A short period for drill should be given every day to every girl in the school, and the drill should be wisely planned and in the hands of an efficient mistress, and should aim at teaching the girls to hold themselves well, to breathe properly, and generally to develop a healthy body. Nor should such training be confined to the gymnasium. If the girls are allowed to sit badly in class the influence of the drill exercises will be counterbalanced. Perhaps few teachers realise the importance of this constant care of the physical development of their pupils. Games are also a great help in physical training; and in girls' secondary schools, where there are few afternoon lessons, there is ample opportunity for these. Such games as fives, in which the left hand is used as much as the right, and which develops both sides of the body, are especially good.

Then, again, the moral training of games must not be lost sight of—the development of public spirit, the unselfishness of playing for the side and not for self, and the self-

II

[illegible] Common School

[illegible] Board of Education [illegible] Common School

[illegible] Board of Education [illegible] Common School

[illegible] Board of Education [

general study of other branches combined with centrated attention to one particular depart-

s us to the second part of our curriculum, the ecialisation, which for the average boy will the age of fifteen. The value to the school as having a strong top formed of older scholars suing advanced studies in the great branches an hardly be overestimated. Such a condition only compels the provision of competent and hers, men of the highest mental equipment but is in these days of municipal retrenchment cement to such men to join the staff of any the boys themselves the advantage is great, fined to the small body of those who intend university career. The influence of the top ward and pervades the whole. Even in the the presence of boys who are destined for a reer in the same class-room with those who hool early and enter business cannot fail to age to both.

rm "specialisation" is misleading. Nothing re of absorption in technical detail can be o schools. By specialisation at school we e intimate acquaintance with great branches and a fuller appreciation of subjects in them- nd broadening. It is on this ground that any in such narrow subjects as commercial prac- lary schools is to be deprecated. The subjects ust be broad.

ch subjects, first and foremost come classics, f all subjects, the key to the highest and best he world. Taught not in the spirit of narrow t with a generous appreciation of their con- all manifestations of literary, political, and nce, they will be brought into relation with glish literature, and from them the boy will o acquire a steady vision and intellectual d to apply to the problems of modern life principles from the greatest storehouse of

two alternative branches of study in which I specialisation in our defined sense are:

languages, taught not merely with a view sition of a colloquial facility, but in relation f their literature.

matics and science.

these studies the teaching should be at once d broadening. It should be in direct connec- iversity work, and will be largely directed by ies. It will be the function of the universities their requirements as to ensure the best of g at school. Throughout the whole of the rue education, not mere equipment for liveli- e the aim.

ion, it is well to recognise that paper curricula s unless there is some guarantee that they are tly and intelligently followed. We want not of subjects, but grading of progress, if I may ression. By this I mean that it is imperative or the execution of any scheme of work in that as far as possible every pupil shares in , and no one is merely marking time. To system of inspection and examination, how- table, is necessary; and such inspection and should be experienced, liberal, and sympa-

III.

By R. Lishman,

Headmaster, Bradford Belle Vue Secondary Boys' School.

In England the force of circumstances has already evolved a type—the municipal secondary school—the main aim of which is to equip pupils more intelligently for the practical life of industry and commerce by broadening their outlook on men and things. My remarks will refer chiefly to schools of this character.

In drawing up a curriculum for any type of school, two apparently contradictory principles should be kept in view:

(1) It should be recognised that the pupil is a being of complex nature and of manifold powers. He is endowed with powers of observation, imagination, and reasoning; he possesses constructive and inventive ability, a sense of beauty of form, colour, and sound, and a capacity for co-operating with his fellows for social ends. These several faculties may be allowed to lie dormant and thus become atrophied, or they may be developed by suitable exercise. If we are to avoid lop-sidedness and secure an all-round, symmetrical development, the curriculum should be ample and varied, and comprise those subjects which are best capable of appealing to every side of the child's nature and of developing every latent power.

(2) In the second place, we must recognise the existence of special aptitudes in every child, a fact simply expressed in the saying of Edward Thring: "Every child can do something well." By discovering and fostering the special natural endowments of the units composing the nation, we employ the best means of securing that "national efficiency" upon which many of our public men have recently laid such stress. It is evident that the national organisation will be most complete and effective when each citizen is doing the work for which he is, by nature, best fitted—in short, when the nation is composed of round men in round holes.

Further, this cultivation of special gifts implies the bringing out of individuality, and the removal of the common reproach against our system of education that it turns out products all of one pattern—men and women who are gregarious, not only in tastes and habits, but in opinions, whether on politics, literature, or art.

Before this can be attempted, however, with any chance of success, the Board of Education will have to relax the present rigid allotment of time to various subjects for all children, in all schools, and in all districts.

Coming now to the details of the curriculum, we are faced at once by the old controversy as to the relative educational values of science and language, or of the utilities and the humanities. Whatever may be our private opinions on this much-debated question, I think it will be generally admitted that the tendency of the times is to abandon what I might term the Ptolemaic theory of education as embodied in the dictum of Pope, "The proper study of mankind is man," and to accept more and more readily the Copernican theory, that the microcosm man, with his histories, languages, and literatures, is, after all, only part of a larger universe. This consideration, together with the fact that in the curriculum of a school of this type utilitarian aims must, from social necessity, preponderate, leads to the conclusion that such practical subjects as mathematics, physics, chemistry (or hygiene, botany, or physiology in girls' schools), geometrical drawing, and manual and physical training, should claim a considerable share of the school time—say 14 out of a total of 27½ hours. This would leave 13½ hours for moral,

civic, literary, and æsthetic subjects. These would comprise English subjects (grammar, composition, literature, history, and geography), two modern languages (or Latin and one modern language), art, and music.

In working according to such a curriculum two principles should, in my opinion, be borne in mind:

(1) It is important that the pupil should be trained in self-reliance and personal initiative—in other words, that the active and inventive, rather than the passive and receptive, side of the pupil's nature should be cultivated. Personally, I am convinced by experience that a judicious use of heuristic methods of teaching in all subjects is the best way to achieve this end.

(2) The subjects should not be treated as though they were enclosed in water-tight compartments, but should be correlated and made mutually helpful.

The first principle may be illustrated in the case of a few subjects. In science, *e.g.*, according to this method, text-books would be entirely dispensed with for the first two or three years. Each year's course might consist of several definite lines of investigation, each comprising a series of graduated experiments arranged in such a sequence that any given experiment can be performed by a common-sense application of the results from previous experiments.

Art teaching in schools has largely consisted hitherto of servile copying of conventional ornament in the flat. While a certain amount of such drawing is necessary in the preliminary stages, in order to give executive skill and a knowledge of balance, symmetry, and proportion, the drawing from natural objects, especially from plant and floral forms, has the obvious advantage of training the observation, of taking the pupil to the original source from which conventional ornament has been derived, and of furnishing material for employment in original designs. These should be executed in colours, since appreciation of colour harmonies and contrasts is surely as important as that of beauty and grace of form.

In studying the grammar of a foreign language, also, the method of active investigation rather than that of passive receptivity would for similar reasons be employed. The conversational sentences used in the earlier lessons would furnish the data from which, by induction and comparison, the elements of grammar might be derived by the pupils under the guidance of the teacher. In the subsequent stages, the reading of continuous narrative in the language would furnish material for more advanced work in grammar. The definite aim in teaching a language should be to give the power to converse in the language and to appreciate its literature.

The second principle, correlation, has of late years been preached *ad nauseam* by its devotees, until some people are inclined to regard it with scepticism. Judiciously used, however, it becomes a valuable means of economising time and energy, and of eradicating the youthful tendency mentally to isolate closely-allied subjects, which are taught in different class-rooms and by different teachers. Thus arithmetic, algebra, and geometry are not ends in themselves, but intellectual tools to be used in the investigation of other fields of knowledge. For this reason it is highly desirable that the teacher of arithmetic should show the practical application of his subject by giving problems on areas, volumes, densities, specific gravities, &c., and chemical problems, such as percentage compositions. The application of arithmetic to the workshop may be illustrated by problems such as the following: "Find the length of plank required to make a box 12 in. by 4 in. by 3 in., the thickness of the wood being ½ in." Similarly, the formulæ used in experimental physics should be introduced into the algebra lessons. The principles of find frequent applications in the physical labor are of the greatest importance in the manua room (especially in metal work), not only in pre working drawings, but in applying the propert circle and the method of developing curved surfa

In conclusion, permit me to refer to two imp jects which are entirely omitted from the sc culum, or admitted with unsympathetic tolera manual training and civic instruction.

Manual training is not intended, as is sometim to turn out "rude mechanicals." Dexterity an in the use of hand and eye are not only indisp the carpenter and blacksmith, but to the su artist, the sculptor, the musician, the inventor scientific experimentalist. As our pupils are a workers in these fruitful fields of human activity delicate manipulation is the prime essential, a of education which fails to give a general trainin and eye is a very incomplete and one-sided educa

Herbert Spencer pointed out in his work on tion" that if our school books were unearthe future antiquarian, he would conclude that thes text-books of some monastic order, since instruc duties of parenthood was entirely omitted.

Might it not with even greater force be urge present system is too exclusively directed to th advancement of the pupil on leaving school, a are apt to forget he will be not only a bread-w wealth-seeker, but also a citizen of the greates ancient or modern times? Yet instruction in duties, and responsibilities of the citizen receive attention in schools wholly or partially suppor State. The subject of civic instruction is int lated to history on the one hand, and to ethic on the other, for the conception of morality narrow one which does not include man's soci ships in his capacity of citizen.

HISTORY AND CURRENT EVE

THIS year, the short-lived kingdom of Gr would have been two hundred years old. O friends are thinking of celebrating the event, th of them think that an event which, in their o not bring much good to Scotland, need not be r The union which put an end to the kingdoms and Scotland was long planned and took lon pleting. Roughly speaking, the periods are abou each. The marriage of Margaret Tudor to Jam be taken as the beginning of things. Th schemes which were to precipitate matters in of the sixteenth century were wrecked on the of race and religion. The claim of Mary St the one sovereign of the two kingdoms was But when the miraculously preserved life o Tudor at last ended in 1603, Mary Stuart's recognised in the person of her son, James VI., partly to Cecil's management, the accession of to the English throne was quickly consummate

But the union of the kingdoms was not thu James was King of England, Scotland, and I the three kingdoms were separate, having ea Parliament and other local machinery, united person of the sovereign. James himself would to unite England and Scotland still further

like Lord Bacon (see his Essay on Prophecies) ranslators of the Bible (see their Preface), called of Great Britain. But, except in international he kingdoms remained separate, and Charles I. the distinction to urge the Short Parliament to Scots, as a foreign, invasion. Oliver Cromwell Edward I., temporarily a successful Unionist, rotectorate Parliaments contained representatives three countries. The Restoration separated the again, and it was not until 1707, after many discussions, that the kingdoms of England and nited, *i.e.*, ceased to be, to form the Kingdom Britain. That kingdom did not last a century.

s year is also the tercentenary of the birth of ritain. "In the year 1614, a certain Richard as solemnly rebuked by the Speaker for daring House of Commons to its face that the struggling f Virginia were of more weight than all the which usually occupied their attention." Seven riously, while Raleigh was in the Tower, and this time a finally successful, attempt had e to found an English colony on the shores of erica, and the folk of Jamestown are naturally in association with English friends, to celebrate on. What "Virginia" meant then, and how nies were founded there in the seventeenth cen- how many different motives, and in what ys, would be a suitable subject for lessons this our pupils. How that early colonial empire ay from us, and how the nineteenth century rowth of another, is getting now to be common . Whether George Washington may be regarded ander or the diminisher of the British Empire e the subject of school essays.

rman Emperor and his Chancellor are congratu- nselves on the results of the recent elections to tag. They appealed from the old Reichstag to n nation, and they have triumphed. There are groups of politicians in that country, and the ies are so curiously arranged, that it is difficult clearly the meaning of all the phenomena, but episode reminds us of our own eighteenth cen- the House of Commons was far more under ce of the Crown and the House of Lords than esent. The German Chancellor is the Emperor's as Walpole was of George I. and George II. y of the people to the throne is greater than to he parties, and as Bismarck and Walpole adapting themselves to currents of opinion, office, so Prince Bülow does not think of We are reminded, too, of "Fox's martyrs" hen George III. appealed to the country against in favour of the younger Pitt, and obtained a y over "connections."

Tales. By C. S. Fearenside. 497 pp. (Bell.) This volume, as an addition to the "York" s a rearrangement of a volume which had appeared in Bohn. Walpole's "Castle of replaces "Gulliver's Travels." Mr. Fearenside's y matter is well done; especially happy is the chronological table which precedes it, and the t the end of it are capital. As a book, either e hour, or a volume for the student of literature ity, this has both value and charm.

ITEMS OF INTEREST.

GENERAL.

THE appointment of Dr. Macnamara, M.P., to be Parliamentary Secretary to the Local Government Board has given much satisfaction to the teaching profession. Dr. Macnamara was certificated as an elementary-school master twenty-five years ago, and has been the editor of the *Schoolmaster* for the last fifteen years. He has long been acknowledged as an expert in educational affairs, and his first-hand and intimate knowledge of the work of schools, together with his thorough belief in the value of education, have ensured for him the respect and consideration of the House of Commons. We wish him the success which his great abilities and earnestness deserve.

AT the London County Council conference held in January, 1906, the suggestion was put forward that teachers of history had long felt the need for some organisation to promote the study of that subject in schools and to facilitate co-operation amongst those engaged in teaching it. The suggestion at once bore fruit, and by the end of June, 1906, an Historical Association had been formed, the aims of which are: (i) The collection of information as to existing systems of historical teaching at home and abroad; (ii) the distribution of information amongst the members of the association as to methods of teaching and aids to teaching; (iii) the encouragement of local centres for the discussion of questions relative to the study and the teaching of history; (iv) representation of the needs and interests of the study of history and of the opinion of its teachers to governing bodies, governmental departments, and other authorities having control over education; (v) co-operation for common objects with the Geographical Association and others. Since June, 1906, the work of the association has gone steadily ahead. The membership numbers more than 500, and local branches have already been started in university and other centres. The first annual meeting was held at University College on February 8th and 9th. Mr. Bryce delivered an address on the "Teaching of History." A paper was read by Prof. Tout maintaining "that the study of broad outlines rather than that of limited periods should be the foundation of historical teaching in schools." All persons are eligible for membership of the association who are engaged or interested in the teaching of history, and applications should be made to the secretary, Miss M. B. Curran, 6, South Square, Gray's Inn, London, W.C.

THE Federated Associations of London Non-primary Teachers have arranged to hold a conference on the teaching of history in schools on March 9th at 3.30 p.m. The meeting will be held at the Regent Street Polytechnic, London, and papers will be read by Miss Alice Gardner, Newnham College, Cambridge, and Dr. J. E. Morris, Bedford Grammar School. A discussion will follow the papers, and all teachers interested in the teaching of history are invited to attend.

THE prizes gained in the twenty-second annual competition held among English schools by the National Society of French Masters in England were distributed by the Lady Mayoress at the Mansion House on February 2nd. The Sèvres vases given by the President of the French Republic were awarded to the City of London School for Girls and to Charterhouse. The gold medals given by the Minister of Public Instruction were awarded to Miss L. Goodfellow, Blackheath High School, and Mr. A. G. Evans, Cheltenham College. The silver medals given by L'Alliance Française were won by Miss Z. L. Hocart,

Ladies' College, Guernsey, and Mr. W. T. Mackie, Charterhouse. M. Cambon, speaking in French, said the competitions in French have had during the past year an extraordinary development. The number of the competitors has risen to nearly 4,000—a figure which has never been reached before. This indicates that the taste for the French language is growing more and more in England. The same is true of the English language in France, which forms one of the most important branches of instruction in French universities. M. Cambon said he sees in this a palpable proof of the *rapprochement* between the two nations and of the sympathy which it brings in its train, which is an effect of the *entente cordiale* established under the auspices of King Edward VII. and the President of the Republic.

A SCHEME for mutual aid in nature-study between town and country schools is proposed on the following lines. The Hon. M. Cordelia Leigh, 32, Chester Street, S.W., is the honorary secretary of the organisation. It is suggested that each country school included in the scheme shall send parcels of objects suitable for nature-study to some particular town school, the objects having been previously used for a lesson in the country school. Parcels should be posted once in three weeks from November to March, and once a fortnight from April to the end of October. The average postage of each parcel should not exceed 4*d*. Objects should be named as far as possible. The objects sent should include, for example, common wild flowers, with their leaves, in sufficient quantity to provide each child of a class with one specimen of the same flower; hedge-row growth, the same species in full leaf, flower, and berry; common grasses; and live animals which can be kept in confinement without cruelty, such as caterpillars, especially injurious ones, which the children may thus learn to know—*e.g.*, larvæ of the lackey moth, cabbage butterfly, woodborer, sawfly. The commonest objects are most suitable. No harmless creatures should be killed or rare plants uprooted for the purpose of sending. The honorary secretary will be glad to hear of town or country schools wishing to join. Applicants are asked to state whether the cost of postage would be provided for in their case.

AN interesting conference for women teachers in secondary schools was held at Hampstead from January 7th to 12th, 1907, to consider the subject of religious work in schools. The conference was convened by the Student Christian Movement and the Union of Students for Work among Schoolgirls. The total number of delegates attending the meetings was 187. Of these, 135 were teachers representing ninety-one schools, thirty-five were special guests and speakers, and seventeen were representatives of various societies definitely connected with Christian work either among schoolgirls or teachers. The meetings of the conference were presided over by Miss Douglas, headmistress of Godolphin School, Salisbury. The programme included Bible readings, addresses on missionary and social work, discussions on religious work for schoolgirls, and reports of what is being done in that direction and the teachers' ideals. The addresses at the evening meeting were of a more devotional character, and were given by the headmaster of Eton; Canon Walpole; Mr. J. L. Paton, Manchester Grammar School; Miss Douglas; Miss Maynard, Westfield College; and others. As this conference was the first of its kind ever held in England, its success may be partially measured by the fact that the proposal to hold another of a like nature in two years' time was unanimously carried. One other pra come was the decision to form some sort of a union, which would be an expansion of the Students for Work among Schoolgirls, under a and with a revised constitution. The names of leading teachers present were added to the alrea committee. Particulars of further development obtained from Miss Moinet, 74, Denison Ho minster.

THE programme of the summer courses to Jena from August 5th to 17th offers attr teachers and students of many subjects. The courses of lectures on various branches of n physical science, pedagogy, psychology and pathology, sociology, theology, history, and and conversation classes in German, French, an Copies of the programme, and other particula obtained from the secretary, Fräulein Clara Jena, Gartenstrasse 4.

THE recently published report of the Departm mittee on Education Rates contains an instr showing the principal sources, other than l which local authorities obtained funds applica poses of education other than elementary durir 1904–5. The total sum reached to nearly two million pounds, of which 20·6 per cent. was d grants from the Board of Education, 38·1 per Exchequer contributions, and 31·5 per cent. The remainder, nearly 10 per cent., represen miscellaneous receipts.

ANOTHER summary in the report deals wit required for education other than elementary i the councils of counties and county borough counties and seven county boroughs raised nc Of the forty-three counties which levied the the year mentioned, sixteen raised less than pound, nineteen as much as 1*d*. and less tha (including the London County Council) as n and less than 3*d*., and one county as much less than 4*d*. As regards the sixty-five cou rates, in twelve cases the amount was less the pound, in thirty-four boroughs it was mc and less than 2*d*., in six more than 2*d*. and le in nine more than 3*d*. and less than 4*d*., in than 4*d*. and less than 5*d*., and in West H was more than 5*d*. in the pound.

THE recently published report—for the year 31st, 1906—of the Medical Officer to the Edu mittee of the London County Council merits attention of all who are interested in questio health, and should appeal with special force and school managers. It gives encouraging e the medical oversight of school children is t in an improved standard of physical and ment and can scarcely fail to impress every read urgent necessity of extending such work, London, but in all parts of the country. The out that a lack of hygienic ideas still prev schools, and that a low standard in regard ventilation, and furniture is still compatible v ment grants. A certain amount of antago least indifference—to the work on the part o also revealed, but one is glad to find abund that, on the whole, the efforts of the medic being warmly seconded by teachers and mar One of the most striking features of the r

ignorance of the most elementary rules of health hown to prevail among both children and parents. for example, that among 1,000 children only two oth-brush, although "a few older children take using a tooth-brush on Sundays." It will be agreed that "the very great importance of the quires impressing on parents and children, both nd evening classes."

ntly published "class-lists" show that the total candidates entered for the Cambridge Local ns held in December last was 13,777, exclusive andidates examined at colonial centres. In the mination, 933 boys and 1,227 girls passed, 84 21 girls being placed in the first class. merit was shown by 397 boys and 115 girls to m to exemption from one or both parts of the examination. Of the junior candidates, 2,720 1,890 girls passed, the numbers placed in the being 335 and 61 respectively. In the pre- xamination, 1,718 boys and 1,324 girls satisfied ners.

e received the report for the session 1905–6 on of the Department of Technology of the City s of London Institute. The report points out now fourteen years since the Institute first made nts for granting teachers' certificates in manual persons who had undergone an approved course ion in the subject, and who, during and at the heir course, passed satisfactory examinations in work and in the methods of teaching. During teen years the regulations for the award of certificates have been frequently modified, and of the examinations has been enlarged, and ther than certificated teachers in elementary ve been admitted to the examinations. The in woodwork and in metal work are accepted cational authorities of Great Britain and Ireland e of the holder's ability to teach the subjects. Institute established classes for the training of n the use of wood-working and metal-working ruction in this subject has made great advances been much improved. Originally introduced by periment in a few elementary schools, it is now ed subject in the curriculum of many elementary dary schools, and also to some extent in training

bject of apprenticeship has received much atten- ng the past year in Switzerland, where four Basel, Lucerne, St. Gall, and Zurich—have ts regulating the attendance of apprentices at chools. These Acts render attendance at both ng schools and the final examination compulsory prentices, male and female. Some relaxation is if the pupils live a long way from the school, and is, of course, granted to pupils at higher schools, echnical or commercial. In the first year or two nal governments have promised not to administer harshly, and some employers are inclined to sail the wind as possible. Trade competition is as the cause in a number of cases; but the s are still inclined to look on the evening classes ailment of their freedom. In Canton Zurich, the has to give four hours per week from office time the apprentice to attend classes. The apprentice have to make some sacrifice of his spare time es to complete the course with credit. At present there are about 5,200 persons affected by the Act, and it is expected that 1,500 will ultimately have to attend the annual examination at the end of their articles. On passing this examination the pupil will receive an official certificate, on which his record is inscribed.

PART of the machinery for administering the Acts has existed for some years, owing to the public spirit of the Society of Swiss Merchants and the Mechanics' Union. These bodies have hitherto formed classes for the instruction of apprentices, and have held examinations. These classes and examinations will continue, and the societies will receive recognition for their efforts. Where no branch of either society exists, the local authorities will be expected to form a continuation school. Though attendance at evening schools is compulsory in several cantons, it is not intended as yet to make attendance at these schools for apprentices compulsory for others than those serving articles, if no Act compelling attendance at continuation school exists. On the other hand, in cantons where attendance is compulsory, the commercial or the mechanics' school is recognised as exempting from attendance at the more elementary evening school. As a rule, an apprentice will have to attend classes for three years before he can present himself for examination. These years will be those including his sixteenth, seventeenth, and eighteenth birthdays. In this way he will be gradually released from discipline, and gradually introduced to the duties of a citizen.

THE fifth issue of "The Schoolmasters' Yearbook and Directory," that for 1907 (Swan Sonnenschein, 6*s.* net), not only maintains its high level of excellence, but shows that the editor intends year by year to increase the usefulness of the indispensable work of reference under his care. Educational administrators, writers on educational subjects, and those actively engaged in the schools have learnt to regard the Yearbook as a trustworthy companion, and unless our experience is uncommon, they always have the well-arranged volume at hand.

THE "Public Schools Year Book" for 1907 (Swan Sonnenschein, 3*s.* 6*d.* net) is the eighteenth issue of this useful work of reference. In addition to an exhaustive description of each public school included, the editors provide a series of chapters, instructive alike to parents and schoolmasters, on public examinations, how to enter the various professions, on preparatory schools, and other subjects. Judging from the frequency with which we ourselves consult the "Year Book," we can recommend it to all workers in the field of secondary education.

WE have received a copy of *The Federal Magazine*, which is a development of the *Monthly Record*, the official organ of the League of the Empire. One of its principal features is to be a series of articles on educational subjects by authorities in different countries and Crown colonies. Monthly reports will also be published in connection with the Federal Conference on Education, to take place in May next.

SCOTTISH.

THE Scottish Educational Reform Association, which was formed some time ago, has wakened to fresh life with the approach of a new parliamentary session. The association confines itself to advocating three general objects: (i) The creation of large areas in which elementary and secondary education shall be administered locally by the same authority. (ii) The establishment of a representative national council to be consulted by the Scotch Education Department in matters of administrative policy. (iii) The enlistment of the co-operation of the universities and other

institutions for higher education in developing and guiding the school education of the country. While supporting these general lines of reform, the association wisely leaves the question of details alone. The association will take no part in parliamentary elections, but will seek to make its influence felt by propagandist work through publications and meetings.

A PUBLIC meeting under the auspices of the association was held in Glasgow University. Mr. Haldane, who has occupied the position of president since the formation of the association, said that it was with much regret he found himself unable any longer to act as president. As a member of the Cabinet before whom questions affecting education in Scotland would have to come, he felt it his duty, both to his colleague, the Secretary for Scotland, and to the association, to demit office. This does not mean, in the least, that his interest in Scottish education will be less keen or less complete than it has been before. He is becoming more and more convinced that the education of this, as of every other country, depends in great measure on the character and training of the teachers. He is glad to find that, as a result of the new regulations for the training of teachers, the ties between the universities and the teaching profession have been greatly strengthened. Mr. Haldane, in supporting the nomination of Mr. C. M. Douglas as the new president, said that no man in Scotland had worked harder than Mr. Douglas in the cause of education, and none had it more genuinely or more thoroughly at heart. Mr. Douglas's nomination was received with acclamation; and Mr. Lamont, M.P., and Principal Laurie, were appointed secretaries.

THE question of university reform has been more or less a matter of public discussion for the past few years. Both from within and from without the universities the cry has arisen for a radical alteration in the government, curriculum, and methods of these bodies. It is only the barest justice, however, to admit that the most pointed and fruitful criticism of the present position has come from the professors themselves. These are so often charged with being educational obscurantists that it is pleasing to find them here in the van of progress. But the agitation for reform has hitherto suffered somewhat from lack of concentration. The fire of criticism has been strong and well directed, but too intermittent to arouse public attention, and after each volley things have gone on pretty much as before. The Committee of the Carnegie Trust seems likely to achieve what individual effort has so far failed to accomplish. In a lengthy document the Committee passes under review the leading features in the existing arrangements, and subjects them to a merciless criticism. The preliminary examination, the nature and scope of the curriculum, the length of the session, are all weighed up and found wanting. The whole document constitutes an unanswerable plea for prompt and thoroughgoing action if university education is to be placed upon a satisfactory basis. The country has been thoroughly aroused by this carefully reasoned and elaborate indictment, and a University Commission may confidently be looked for during the present session.

THE Scotch Education Department has just issued a circular detailing the conditions for recognition as qualified teachers of modern languages. Candidates must have attended an approved course at training college or university classes or at special courses extending to not less than sixty hours, and recognised by the Provincial Committees as qualifying for that purpose. The examination will consist of three parts: (i) The Preliminary Oral Te must be passed at least one year before presentatic final examination. (ii) The Written Examinatio will be held immediately before the Easter rece papers will be similar to those set for the higl leaving certificate, but the standard required for will be considerably higher. (iii) The Oral Te will be conducted during the summer session follo written examinations. A high standard will be e regards accuracy of pronunciation and fluency ance, as well as capability of understanding ordin versation or simple narrative.

THE General Committee of Management of the tional Institute of Scotland has had under cons the proposal to alter the date of the leaving c examination. While recognising the importance reasons given by the Department for the proposed it recommends the retention of the present date following grounds: As the leaving certificate exa is the objective of the year's work, the present da tains the interest and the attendance of the pu the end of the session. Theoretically, an exa should be merely an incident in a progressive co it is felt that many would consider the examina the end of the session as co-terminous. The gene therefore, of the change would be to reduce th life of many pupils by three months. It is furthe out that Easter is a time when pupils are physically, to meet the demands of such examinati

THE annual meeting of the Sloyd Association land was held in the E.C. Training College, E Dr. Morgan, president, in the chair. The secre port showed that twenty-five candidates sat for amination for the higher certificate of the associa sixteen for the lower. Of these, eight obtaine certificates and fourteen lower. These certificate cognised by the Scotch Education Department local education authorities as qualifying for giving tion in the subject. Mr. Scougal, senior chief of schools, congratulated the association on the work it is doing. Educational handwork is n cognised part of every well-balanced curriculum, public has still to be educated to see that its importance lay more on its educational side th manual side. When this is fully recognised no be heard in depreciation of the subject on the gr it is playing at "joiner's work."

IT is officially announced that Dr. Donald M director of medical studies at St. John's Colle bridge, and president of the General Medical Co been appointed principal of Glasgow University cession to the late Dr. Story. Dr. Macalister, i of specialists, is essentially an all-round man. senior wrangler and first Smith's prizeman in a Master of Arts, a Doctor of Medicine, a of Science, a Doctor of Laws, and a distingui grapher. His appointment as successor to Sir Turner proves that he is also a man of affairs, is of the utmost importance at the present tir the need for reorganisation in all departments of life is universally recognised.

IT is not often the retiral of a schoolmaster, eminent, attracts much public notice, yet circu have combined to make the retiral of Mr. B thirty years headmaster of Meigle Public School, one. Meigle is a small village in Perthshire, a to fame chiefly by reason of its nearness to

e home of Sir Henry Campbell-Bannerman. A representative of all classes of the community the other day to show their appreciation of r's work and worth, and to present him with ible tokens of their esteem. Among the apologies e was one from the Prime Minister, who said have liked to show by his presence, and perhaps or two, his sincere admiration of Mr. Butter, at his retirement, and his deep sense of what unity of Meigle owed to him. "No better exld be found of the Scottish schoolmaster, a type done more to make the Scottish people what than minister, laird, or factor. The dominie an for a' that." Such a tribute reflects honour member of the teaching profession, and Mr. e *fons et origo* of it all, well deserves the admiraespect of all his professional brethren. In all this it seems the veriest mockery that an should be rewarded by a pension of about ar. "Mouth honour, breath," Scottish teachers ys had in plenty. They are surfeited with it, d would commend to all their admirers the the cow to its owner, the piper: "Gae me a peck trae and sell your wind for siller."

IRISH.

ion to the Government pamphlet with the Rules amme of the Intermediate Board for 1908, the te Commissioners have now issued their own (price 3*d.*), containing, besides the matter we last month, the notices ordinarily prefixed to the ailing the important changes made and giving l calendar. It is explained that by the subject ge, literature, and history of Great Britain and meant merely English composition, and that on the subject-matter set will be discontinued. uncement is also made that the Intermediate been added by the Lords Commissioners of the to the list of authorities who are allowed to candidates for entry into the Royal Navy as boy Candidates are entered twice a year, in January gust, and must be between the ages of fifteen n. The number of nominations is very limited, ations must be forwarded to the Assistant Com- before November 15th for entry in January, and y 15th for entry in August.

e paper was issued last month (price 2½*d.*) con- correspondence that passed between the Govern- the Intermediate Commissioners on the subject olution of the House of Commons of May 21st chief point of which was that Irish should be an equality with all languages other than English gramme for 1907. The correspondence is some- monious, the Government actually threatening to e Commissioners, who replied with a dignified The point at issue was this: the Commissioners the changes demanded could not be made in time 7 programme, as to put Irish on an equality with nch, and so on, would require a complete change ules. Either the Board must insist on two besides English, and this would be a hardship s in the higher grades who had already passed e lower grades with only one language, or else e language were compulsory, then students from districts would by means of Irish be able to pass n intermediate course without receiving an intermediate education by taking, say, English, Irish, arithmetic, geometry, book-keeping, and shorthand, a course inferior to that of primary schools. The Commissioners further urged that, as the Lord Lieutenant had signed the Rules, the Government should in the House of Commons have defended the Board. The Government took up the position that the Board was unconstitutionally trying to defy the House of Commons, and weakly maintained that when the Rules were officially sanctioned the Lord Lieutenant was not aware of the position accorded to Irish. The quarrel ended in the Rules for 1906 being continued for 1907, while the Rules for 1908 contain the changes desired by the House of Commons, but whether in a form desired by intermediate schools is another question.

THE official meeting of the Irish National Party, held in Dublin just before the opening of Parliament, passed two educational resolutions: (1) That Irish education in all its branches—primary, intermediate, and university—is in a condition of deplorable neglect and disorganisation, approaching to chaos. That we warmly sympathise with and pledge our support to the great popular movement recently started in favour of the reorganisation of primary education, and the removal of the intolerable grievances of the Irish national teachers. (2) That the Irish Parliamentary Party be strongly exhorted to take immediate and energetic steps to have the intermediate grants to schools and awards to students restored to the standard of 1903, and that the alleged reason for the sweeping reduction is discreditable to any Government. It is to be hoped that the new Chief Secretary will at once take educational matters in hand and try to reduce some order out of the chaos into which things seem to be drifting.

THE Department of Agriculture and Technical Instruction has issued several circulars of importance to education. Summer courses of instruction for teachers will be held next summer, from July 9th to August 2nd, in experimental science, in laboratory arts, in drawing and modelling, in domestic economy, in manual training (woodwork), in crochet work, embroidery, sprigging, and drawn thread work. A course will be held from August 6th to 31st for manual instructors in metal work, wood-carving, turnery, and building construction. Teachers desiring to take advantage of these courses must apply before March 30th. There will be awarded in December, 1907, ten open scholarships and ten limited scholarships to assist domestic economy students in taking the full course of instruction at the Irish Training School of Domestic Economy. The examination will take place for candidates (who must be between nineteen and thirty years of age) on December 3rd. Full particulars must be applied for between June 1st and September 30th. Three teacherships in training, tenable at the Metropolitan School of Art, Dublin, will be competed for on July 2nd to 4th. The examination will be in art subjects, and application must be made before April 30th. The Department further announces that a limited number of scholarships of the value of £50 per annum, tenable at the Royal College of Science for three years, and of teacherships in training with an allowance of 21*s.* a week for the session of forty weeks, will be competed for on July 2nd to 4th. Application must be made before April 30th. The competition is confined to mathematics, experimental science, and drawing, and candidates must be between sixteen and thirty years of age. A special examination for teachers' qualifications in manual training (woodwork) will be held in Dublin on June 25th and 26th. Applicants must be twenty-one years of age, and send in their names before May 1st.

Mr. Bryce before his departure launched on Ireland a last Parthian shot with his scheme for settling the Irish university question. He candidly admits that the Government had made up its mind to its plan without regard to the Royal Commission on Trinity College. The report of the latter was barely published, and the evidence on which the report is based was not published, when Mr. Bryce enunciated his views to two deputations specially invited for this purpose. He claims, however, that the recommendations of the majority of the Commissioners are in favour of his proposal. It is doubtful whether this is really the case, for although both proposals agree in suggesting a second college in Dublin suitable for Roman Catholics, with others in Cork and Belfast, to be incorporated alongside of Trinity College in Dublin University, the nature and functions of the university proposed seem to differ greatly. The Commissioners suggest a university in which the colleges will be practically autonomous, the interference of the University being reduced to a minimum, while the Government scheme involves a great deal of interference with the colleges on the part of the University. Briefly, Mr. Bryce outlines a scheme similar to Mr. Gladstone's of 1874. The Royal University is to be abolished, and the Queen's Colleges, with a new Roman Catholic college, are to be incorporated in Dublin University. It is hoped that this college will, for scientific purposes, be able to avail itself of the new Royal College of Science. The University would be governed by a body partly nominated by the Crown and partly elected by the University teachers and the whole body of graduates. It would also appoint teachers in non-controversial subjects. In controversial subjects alternative papers are to be set, and the professors are not to be allowed to teach views which would give any offence.

The attitude of the Nationalist Party to this scheme is undecided. While praising Mr. Bryce for his courage in enunciating a definite proposal, it prefers to await details before giving a final approval. Trinity College has repudiated it with spontaneous unanimity. It has made its position quite clear. It has no objection to the endowment of a Catholic University College, but it objects to being federated with it. At a very large meeting of the Senate on February 4th the following resolution, proposed by the Provost, was unanimously carried: That we are of opinion that the scheme which Mr. Bryce outlined in his speech of January 23th would be fatal to the best interests of liberal university education in Ireland, as well as unjust to Trinity College, and we are determined to oppose it by every means in our power.

WELSH.

A DISTINCT Department of Education is created at Whitehall to deal with all grades of education in Wales and Monmouthshire. The first step has been taken, by the appointment of a permanent secretary of the Welsh Education Department and a chief inspector for Welsh education. These officers will be directly responsible to the President of the Board of Education. The work of separating the details in the Board of Education which refers to Wales and transferring them to the new department is going on, and it is expected that the separation will be effected so that the new Welsh department may be set in motion at the beginning of April. Some functions of the new department will still be dealt with by South Kensington, pending the concentration of all branches of the Board's work in the new premises next Christmas.

THE first permanent secretary is Mr. A. T. Da was educated at the University College o Aberystwyth, of which college he is a governor. fession he is a solicitor. He is a member of th tion Committee of the Denbighshire County Co has done organising work in the promotion of instruction in Lancashire. The first chief ins Mr. O. M. Edwards, who was educated at Grammar School, at the University College o Aberystwyth, and at Balliol College, Oxford. elected M.P. for Merionethshire, to succeed the Thomas Ellis, but only remained in Parliament time. He is a Fellow and Lecturer on Modern in Lincoln College, Oxford. He is a well-known on the history of Wales, and has worked with n energy in writing for and editing Welsh magaz is closely identified with Welsh educational and movements. He has been Warden of the Graduates of the University of Wales. The tw on whose guidance the success of the new devol so greatly depend are recognised as capable thoroughly acceptable to Wales.

THE newspapers speak of the new Welsh d as having relations with all grades of Welsh But it is not definitely announced, for insta the Welsh department will have any direct rela the University of Wales. Nor is it specified a it will control intermediate education. The arise: Will the Government proceed with the id Education Council for Wales? What is to be th of the present Central Welsh Intermediate Board? And—a matter of great interest to el school teachers—will there be a separate Welsh mulgated?

THERE is great unrest at Cardiff over the q Welsh question. Welsh is now being taught elementary schools in accordance with a resoluti City Council, passed by the narrowest majority. opponents have brought up the question again. T man of the Education Committee was not prese was, on that account, decided to adjourn the d How long the present indecision will last rema seen, but in the meantime it would appear that of the attempt to require the teaching of Wels Welsh county schools, the Cardiff City Counc even make up its mind to discuss the question a with regard to its own intermediate school.

A SERIOUS difficulty has arisen in connection Gelligaer Intermediate School (Glamorganshir clerk of the school has had to write, on beha governors, to the Glamorganshire Education C to say that the financial position of the Gelliga is very serious, and to ask if the County Educat mittee can see its way to make an advance to t to meet accounts due. It is pointed out th those accounts are met the creditors will prob legal proceedings to recover them. The clerk Glamorganshire County Council has replied that nothing due from the county education authorit the creditors take proceedings they will be ag governors personally, as the county cannot ass responsibility for the debts incurred.

THE Glamorganshire Education Committee ha past advised the Gelligaer Committee to raise to cover the working cost of the education to coming from the adjacent county of Monmouth

at £12 for boys and £10 for girls. The Mon- County Council agreed at once to pay them. elligaer governors refused to raise the fees to their own district, asserting that £4 a year ch as could be afforded by their own *clientèle*, parents had also to pay train fares as well for ren. The county authority stood out for the the fees to £5 a year, and advised a reduction mber of scholarships. The governors have seek an interview with the President of the ducation to lay the whole question before him.

CENT SCHOOL BOOKS AND APPARATUS.

Classics.

Greek Course. By Dr. W. H. D. Rouse. vi+ Blackie.) 2s. 6d.—This book, Dr. Rouse tells piled as part of a reformed school curriculum. that a boy well graduated in French and Latin Greek between fourteen and fifteen; with three- an hour a day he will make rapid progress, than a year be able to read the "Apology" There is no doubt about the soundness of the present writer began Greek between thirteen , and was reading the "Hecuba" in less than s and the "Apology" well inside a year. It however, to have the foundation of French well laid. In this book we have writing, con- d conversation carried on together from the pieces of genuine Greek literature accompany ar, even the alphabet; these are to be read, ut, and talked over in the original. The book fresh and stimulating. Dr. Rouse arranges the his own order, and accompanies every exercise wn vocabulary, but a compendium of ordered with a verb-list and alphabetical vocabularies e latter half of the book. For criticism: the in- p. 5 should be translated; the rule (p. 10) for ning of *o* in the comparative is inaccurate for πικρός or πυκνός; the rule (p. 19) about verbs ong aorist is too general—*e.g.*, it would not γω or τρέπω; the acc. is only used of motion to (p. 23); the accent of the dual of contracted m. and n., is oxytone, not circumflex; σσ occurs for ττ—*e.g.*, in πράσσω (p. 67) and ἐλάσσων (p. is considerable confusion on p. 67; we are e ἀνώγεων and λελύκω, λελύκοιμι, &c. (instead ὦ, εἶην). We do not think λύω, with its anges of quantity, a good verb to be used as , but in any case Dr. Rouse has omitted to the voices on pp. 116–8. He is inaccurate in of ἑστώς, βεβώς, on p. 142.

in Book. By W. H. S. Jones. 100 pp. (Mac- t. 6d.—Mr. Jones gives us in this another book method of teaching Latin. It is intended for of about twelve years of age, and covers the work. Those who are adopting this method iteful for this book, but it is essential, as Mr. , that the teacher should have spontaneity. translation into Latin, but there are exercises, ritten, in free Latin composition, based on the ages given. We are sorry that these are not based upon actual extracts from Latin literature. ne pieces to be learnt by heart are poor stuff. ar begins with the imperative and pres. indic.; then we have *parvus, quis, sum*, &c.; but it is all properly rearranged at the end of the book in logical order. It is not clear why the verb in the paradigms is changed sometimes, and occasionally more detail is wanted; *e.g.*, the imperative of *facio* should be added on p. 5, unless *capio* be substituted, and the pres. inf. pass. is dismissed too curtly. On p. 3 the answer *surgit* is incorrect. It would be impossible for the beginner with the information given to form correctly the ppft. of *sto* (p. 38) on the p.p.p. of *dico* (p. 52). The ingenious tables on pp. 40 and 41 are unnecessary; grammatical drill requires unstereotyped variety; and on p. 41 fourth conjugation should be fourth declension. Stress is rightly laid on pronunciation, but nothing is said about the division of syllables; *e.g.*, in § 5 the words should be divided, *pos-se, lam-mi-na, va-cā.*

Geography.

The Preliminary Geography. By Dr. A. J. Herbertson. viii+149 pp. (Clarendon Press.) 1s. 6d.—This is vol. i. of the Oxford Geographies, vol. ii. of which has already reached a second edition. The series is educative to a high degree, and throughout the "Why?" and the "Wherefore?" are insisted upon. The reader is everywhere encouraged to think, nay, made to think, on the dependence of Man upon his surroundings. In this preliminary volume the style is largely descriptive, and rightly so. The author's idea is to give definite "pictures" of the different parts of the world. To this end quotations of, and condensations from, travellers' stories are freely laid under contribution, and always with effect. Nevertheless, the main defect is, we think, that the book is rather hard throughout, and we thought the same of vol. ii.; the author himself seems to have felt this, as here and there he has marked portions which may be omitted "on a first reading." Certainly to read the book in class requires a teacher who shall be considerably more than a "chapter-ahead" man. Given such a teacher, and all is plain sailing. Two features we like especially: everything is referred back to causes and principles, and maps are, *as a rule* (not always—more's the pity!), fully explained. By way of examples, the chapter on climate in N. and S. America introduces explanations of land and sea breezes, wind influences, forms of water, fog and cloud, cause of rain, &c.; under Fig. 39 (a map of Asiatic highlands and lowlands) is printed: "Notice how the land below 600 feet is mainly in the west and north-west, where it is continuous with the lowlands of Europe. It is also found in patches round the margins. Come back to this figure and notice more particularly the lowland of China, India, and Mesopotamia when studying Figs. 41, 48, and 49." This is as it should be; we wish there was more of it.

Atlas of the World's Commerce. By J. G. Bartholomew. (Newnes.) To be completed in twenty-two parts, 6d. each. —This publication continues to progress along the same excellent lines as in the earlier portions. To teachers of commercial geography it should be almost a *sine qua non*. Part 12 deals with cocoa and spices, beer and spirits, barley, millet, sago, rice, and rye; Part 13 with flax, hemp and jute, precious stones and pearls, and petroleum; Part 14 with various climatic and population conditions, the languages of commerce, the wealth of nations, and the commercial development of the world. Succeeding parts commence a gazetteer of countries and ports, and deal with such subjects as dairy produce and the meat trade, fruit and timber, coal and other minerals. By the end of January Part 19 had been reached. We have not space to enumerate the many striking points, all of which are

well indicated: the following will serve as examples: the remarkable increase of rice production in the southern States (by some attributed to Japanese immigration); the greater consumption per head of beer in the United Kingdom than in Germany, where the preference for wine in the south lowers the "beer" average; the overwhelming preponderance of S. Africa in the diamond trade; and the crowding of population up the Ganges valley in India. Part 12 begins one of Mr. Chisholm's characteristic and excellent dissertations on "Economic Geography." He is at pains—and not before time—to point out that the field of study has limits. Some latter-day writers, teachers, and lecturers have appeared not to realise that geology and political economy and economic statistics are in themselves not geographical facts at all, but merely influences producing certain geographical results and as such should be kept in their proper positions in geographical treatises. Mr. Chisholm shows how this may be done, as he enumerates and descants upon the permanent geographical conditions which make for economic development; and he does it all excellently.

Geographical Gleanings. By the Rev. Frank R. Burrows. 72 pp. (Philip.) 1*s.* 6*d.* net.—We commend this booklet to those teachers of geography—unfortunately a large number—who do not realise the educational value of their subject. Mr. Burrows has little to say that is new to readers of modern educational literature, but his thorough belief in geography as an educative agent makes all he has to say interesting and helpful.

Mathematics.

Geometry, Theoretical and Practical. Section iv. Rectangles and Polygons. By W. P. Workman and A. G. Cracknell. 330–418 pp. (Clive.) 1*s.*—Part i. of this manual is noticed in The School World, vol. viii., p. 198, and the method of treatment indicated in that notice is followed in the section before us. The section contains the subject-matter of Euclid, Book II., Book III., 35–37, and Book IV., 10–16; but the treatment is not that of Euclid, and many theorems are included that are not to be found in the Elements, though contained in the modern editions of that work. In the discussion of rectangles, geometrical proofs as well as algebraical illustrations are given; algebraical illustrations are essential, and yet they are not sufficient as proofs from the purely geometrical standpoint so long as rational numbers alone are used. A proof may, however, be algebraic in its symbolism and yet geometrical in its essence, though beginners often fail to see this. The section is provided with numerous examples; these are no doubt useful, but there is a serious danger of overloading a book with theorems and exercises that are not really necessary to a sound grasp of geometrical principles.

Practical Trigonometry. By H. C. Playne and R. C. Fawdry. vii+156+xi pp. (Arnold.) 2*s.* 6*d.*—This text-book, while excellent in its practical applications, is also good in its theoretical development. In the earlier pages attention is chiefly restricted to acute angles, and many simple and interesting illustrations of the use of trigonometry in the solution of problems of the kind usually classified as "heights and distances" are given in the text and in the exercises. The discussion of the functions of angles greater than a right angle begins at p. 36, and, though perhaps condensed, is clear and good. The least satisfactory chapter, in our judgment, is chapter vi., on "Projection and Formulæ for Compound Angles"; the fundamental theorem on projection, considered for the proof of the Addition Theorem, needs statement than is given in article 36. P elementary character of the book is respons somewhat meagre statements of that article, bu contains all the material for a full presenta case. The exercises on logarithms are rich examples, though possibly not necessary in trigonometry. An excellent chapter on angles not in one plane and on trigonometrical sur cludes the work. Though the analytical side metry seems to us to be too slightly treated, book on practical trigonometry, and graphical so fully utilised as it might be, the general made by a careful examination is decidedly the exercises are unusually good, and the masters the contents of the volume will have a of elementary trigonometry.

Pitman's "Method" Arithmetics. Part v (Pitman.) Paper, 4*d.*; cloth, 5*d.*—In addition tinuation of fractions, proportion, interest, perc mensuration, this part deals with profit and los stocks, and miscellaneous problems (including metric system). The examples of which the bo up provide ample practice and seem to be c care.

The Rational Arithmetic. Seventh Year's George Ricks. (Macmillan.)—The general c this text-book is stated in The School World p. 437, this course also appearing as a Tea (price 8*d.*) and a Scholar's Book (price 3*d.*). T include stocks and shares, recurring decimals, system, and curves.

The Geometry of the Screw Propeller. By Goudie. 47 pp. (Blackie.) 1*s.* 6*d.* net.—Thi consists of a reprint of a series of articles p a technical journal. For students who pos knowledge of the elementary principles of m struction, the explanations given of the geom subject and the numerous hints for the con simple models will be of great service.

Clive's New Shilling Arithmetic. Edited Briggs. viii+160 pp. (Clive.) 1*s.*; with answ —This book is essentially a collection of ex problems for both oral and written work though the main definitions and rules are giv appropriate places. The various sets seem graded.

Science and Technology.

Conduction of Electricity through Gases. By Thomson. Second edition. viii+678 pp. (Cam versity Press.) 16*s.*—A descriptive review of edition of this work appeared in The School March, 1904 (vol. vi., p. 104). During the pa four years much attention has been given by me —particularly those of the Cavendish Laborat nature and cause of electrical discharges thro and the corpuscular theory of electricity involv study. As a pioneer among modern investi interpreters of these phenomena, Prof. Thomso gratified at the marvellous developments of t inquiry opened by him, though the result has he has had to rewrite a large part of the origi and add more than one hundred pages, in orc some account of what has been accomplished. possess this authoritative statement of the posi

ant subjects of study in physical science at time—the nature of electricity and the constitu-ter—written by a leading physicist, should be n of every teacher who desires to be in the ientific thought.

Methods of Inorganic Chemistry. By F. kin. vii+155 pp. (Constable.) 2s. 6d. net.—feeling both in this country and in Germany le attention is paid by the chemical student to inorganic work and that relatively too much ays devoted to organic work. This book has n to meet the needs of students making in-parations, work which the author recommends carried on concurrently with the qualitative ourse. Commencing with the preparation of le substances and the determination of the of magnesium, tin, &c., the methods of making ly purifying quite a number of simple and , alums, &c., are described. The halogens and npounds are next investigated, including such as sulphur monochloride, sulphuryl chloride chloroform. Subsequent chapters deal with e inorganic acids and with the preparation of metalloids, including a description of the ocess of welding. A final chapter contains a preparations such as hydrazine, nitro- and dine and also gives methods of preparing utions. Tables and data for the preparation are contained in an appendix. The directions clear and concise and sufficient theory is intro-plain the methods used: it is perhaps a pity uthor has not thought it advisable to insert o the original literature on the subject in the habit of looking up the literature is one which cquired too early by the student.

Experiments and Discussions in Introductory with a Plan for the Organisation of the Subject- Eugene P. Schoch. vii+62 pp. (Heath.) gh contributing one more, this time from the de, to the legion of elementary text-books in Dr. Schoch's work is of interest in that it ne novel features. He starts from the stand-hemistry is not a recital of theories but that h realities—with facts; *these* are to be known and accordingly he treats the subject primarily ssive study and deals with the general proper-tances rather than presenting reactions as the special properties. The book is intended to be l to the ordinary text-book and practical class roperly used it should be most useful in causing think instead of merely mechanically repeat-experiments and learning equations. The ling with the action of some general reagents nd 37 are particularly good and may be briefly he action of sodium hydroxide solution upon e metallic salts is taken as an example. It ut in the first place that although hydroxides otained in such reactions yet secondary changes o the formation of other substances owing to or the dissolution of the precipitated hydroxide the reagent. The student is led to investigate ur of a number of salts and find that some are easily soluble in water and therefore only from concentrated solutions, others are oluble and more or less completely soluble, are soluble in excess, whilst others undergo hanges, especially in hot solutions. Accordingly he is able to select those metals which the reagent can be used to precipitate and at the same time obtains a clear understanding of much of the procedure for analytical separations, generally dogmatically stated in other books. This illustration serves to show the trend of Dr. Schoch's method and we should not hesitate to put the book in the hands of the student.

Philips' School Gardening Diagrams. (Philip.) 7s. 6d. net.—This series of six wall-diagrams will be found useful in schools of practical horticulture. The sheets illustrate methods of planting, budding, branch-pruning, root-pruning, layering, and grafting respectively, and are well and clearly printed.

Art.

The "A.L." Leaves. Pressed and preserved between two sheets of transparent celluloid. Set of 12, in box, 7s. (Leeds: Arnold.)

The "A.L." "Celeritas" Drawing and Designing Cards. By an Art Teacher. In two packets, each containing 24 cards, 2s. 3d. each packet. (Leeds: Arnold.)

The "A.L." Series of Freehand Photo Copies on Cards. 24 cards, with instructions, 2s. 6d. per packet net. (Leeds: Arnold.)

Messrs. Arnold and Son are issuing a set of natural leaves of British timber trees and plants, from the Orpington nature-study prize scheme; the leaves are dried and pressed between two sheets of transparent celluloid, strongly bound at the edges. It is an ingenious device, and should prove useful to teachers of nature-study or drawing when fresh leaves are not available. The set consists of twelve well-known leaves of varied shapes, and is accompanied by some exceedingly lucid and suggestive descriptive and teaching notes.

The advisability of attempting to teach school children to "design" is a moot point, an opinion which obtains largely being that a child's school life (so far as drawing is concerned) should be spent in acquiring manual dexterity and in cultivating an acquaintance with what is good and beautiful in Art and Nature, thus laying up a storehouse of knowledge and skill on which to draw when occasion requires. From no point of view, however, can we find any justification for the publication of the "*A.L.*" "*Celeritas*" *Drawing and Designing Cards*, by an "Art Teacher." Each card contains a drawing of a flower or spray, with a conventional rendering and a design based thereon. The drawing throughout is weak and often grossly inaccurate, stems and leaves joining in most impossible positions, and flowers stuck on at all angles. The designs are feeble and pointless; the border design, for instance, based on marigold leaves (No. 3), might with equal truth be said to be based on Indian clubs or on soda-water bottles. The colouring is crude, often garish. Altogether we must consider this an unfortunate and ill-advised publication, and one which, in the hands of the inexperienced teacher, who alone is likely to make use of it, may be capable of doing considerable harm.

The "*A.L.*" *Art Series Freehand* consists of twenty-four reproductions of photos of textiles and ornament in relief, taken principally from the Board of Education examination tests, and will be found useful by teachers who are preparing their classes for examination in this subject.

A Manual of Historic Ornament. By Richard Glazier. 168 pp.; 600 illustrations. (Batsford.) 6s. net.—Mr. Richard Glazier's popular "Manual of Historic Ornament," an enlarged and revised second edition of which is published by Mr. Batsford, although intended

primarily as a text-book for art students and craftsmen, possesses a general and educational interest which will amply justify its inclusion in the school library. The book forms an epitome of the history of the evolution, traditions, and development of architecture and the applied arts from about 4000 B.C. to the middle of the eighteenth century; it takes a rapid and comprehensive survey of the main characteristics of each style, period, and country, giving a vast amount of precise information in a clear and succinct form. The 600 illustrations are admirably chosen as typical examples, and are excellently drawn and reproduced.

CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD *will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

Greek for Beginners.

MY attention has been directed to a notice in your February issue which severely censures an edition of easy selections from Thucydides, VI., on the ground that this author is beyond the reach of beginners in Greek.

Your readers, I think, should know that the reproof, whatever its weight, falls, not upon the shoulders of the editor of the volume, but upon the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield; for this selection of chapters was made by the Board as one of their set books for next July expressly on the ground that the simpler parts of Thucydides afford excellent material for the first Greek author studied by beginners. Your reviewer, no doubt, can hardly be expected to follow the proceedings of such remote northern academies; but whoever undertakes to review school books ought to be acquainted with the very excellent selections from Thucydides made for the same purpose in different series by such practical teachers as Dr. Rouse (Rivingtons' Series) and Mr. Colson (Macmillan's Elementary Classics); in the latter vocabularies are furnished. And if your reviewer could have found time to read Mr. Ure's thoughtful and most stimulating Introduction, or to observe the admirable scholarship and lucidity of his notes, I venture to think his verdict would have been different.

The general question, however, of the time at which the beginner should come to Thucydides is more important than the merits of any one edition, however excellent. Many years' experience of teaching Greek to very backward students convinced me that if the selections be properly made no other Greek writer gives the learner more quickly a grasp of the fundamental structure of the language; and to be able to introduce pupils at once to the greatest of historians instead of to the dull "parasangs" of Xenophon's "Anabasis" is an enormous gain. But lest I should appear to be setting merely my opinion against that of your anonymous reviewer, let me add that this was the regular practice at the City of London School in the great days of Dr. E. A. Abbott's rule. The present Chancellor of the Exchequer, Prof. J. S. Reid, Mr. Sidney Lee, Canon Beeching, Mr. P. A. Barnett, and the late Prof. Bendall—to mention no others—were all the victims of Greek training "of a type which" your reviewer "hopes is doomed to extinction." R. S. CONWAY.

The University of Manchester.

MY opinion is quite unchanged by the array of authorities quoted by Prof. Conway. These authorities have no claim to speak for school work; if they had, I opinion by reasoning and not by authority. I fault with the use of Thucydides, or with th made by Mr. Ure, but with the whole conceptic is needed for a gradual introduction to Greek, by the combination of vocabulary, element advanced notes, and long introduction. I have in and have tested, a different mode of introduction and am aware by experience of what can and done or assimilated by classes of boys. My ren no application to beginners of the university ag confined to school classes, this journal being T WORLD. If Dr. Abbott used this kind of book i of London School, I think that the acknowledg of the City boys was due to some other cause weighed the faults of his system. Prof. Conw right to suggest that I have not read Mr. U duction, and doubtless he used the words thoug

THE R

On the Value of Vocabularies.

ONE always reads with interest the reviews c books that appear in your columns, but, as your remarks will naturally have weight with publisl is one point on which I should like to break a him. He has apparently a great antipathy t provided with vocabularies, and seems to lay d law that if boys can read an author they sho dictionary. The point is one to be decided, not but by practice, and as the result of more th years' experience in teaching boys of every stand Sixth Form to beginners, I say deliberately that ing books for the use of a Fifth Form (and tho boys whose interests seem most concerned) I alw editions with vocabularies, and I do this for thre

(1) There is the question of expense—a ve consideration, at any rate in town day schools.

(2) There is the problem of carrying books to school.

(3) There is the far more important point of I know full well the educational value of the p and intelligent use of a dictionary, but I know heavy price that has to be paid for it. The q whether the books are to be read simply as a discipline or as literature. If, as I believe, th the true view, it is essential that the pupil's read be as extensive as possible, and I know that Form boys of average ability I can in six mo with the help of vocabularies more than twice a would be possible if the boys had to use diction accuracy the standard will be the same; in ir cultivation of taste, in the widening of the ment the comparison is vastly in favour of the forme Even as to intellectual discipline, I very mu whether there is any serious loss. The average a dictionary is only too prone to take the first he finds, and if this will not make sense to gi passage in despair; with a vocabulary he does so overwhelmed, and so tries more. I find, too, in the despised vocabulary about half the words which practically have only one meaning, and a there is a great saving of time (most important our classical hours are so curtailed) in not havin over the pages of a dictionary, while, as to the o a large proportion are used in two or more sens book read, and the boy has to employ his wits t which will suit the passage. As to the theory t

word in a dictionary will impress it on his whit more than looking it out in a vocabulary, ely sceptical.

stion is, however, one purely of experience, and doctors may differ. All I am anxious for is that shall recognise that your reviewer's prejudice cabularies is not shared by all schoolmasters.

dd that I only wish I could find editions with s of all the books of Homer and Herodotus, of interesting speeches of Lysias, of Andocides riis," of Thucydides, Book IV., and of Sidg- cenes from Greek Plays "?

rammar School. A. C. PRICE.

ONE years' experience has led me to a different

your correspondent's reasons:

al vocabularies are an enormous waste of If a boy reads one text a term for two years ght six single texts with vocabularies, contain- all the same words. For the same sum, say s., he could have bought a dictionary (3s. 6d.) ld have been enough for all his work up to the n, and a whole text of Virgil, Horace, Caesar, of Cicero. If the calculation include three or the waste of money becomes more marked still. naries need not be carried to and from school.

ation.—Here a definite system is needed; the he boy differ at each stage. At first the boy neither dictionary nor vocabulary, but be told anings by his master. By degrees he should ewer and fewer meanings, the dictionary being now and again in case of a chance omission liness. But in all early stages the fount of in- should be the master the dictionary being only eference. The aim which your correspondent r would be served by notes, giving all meanings rds but this presupposes a graduated system, clear your correspondent has not in his mind. ns which he assumes for my preferring a are not mine at all.

worth while adding that it is convenient to ext open whilst a word is being looked up, and it to have a glossary at the end of a book.

ect is too wide to be dealt with in a note; for dictionaries is part of the general question: d Latin and Greek be taught? What is our are our methods? Do we wish to hear lessons h? Is it information or education we give? e way to impart information, so as to lead the use it rather than to produce it on demand? estions seem to your correspondent out of place, gest to him that there may be other problems investigation before one can form a true opinion ter of vocabularies. THE REVIEWER.

e Direct Method of Teaching French.

much discussion of the theory of the direct teaching modern languages, the interesting our last issue, dealing with the subject from of view of one who has tried to put the new practice, was welcome.

iew of the class difficulties the writer himself nced will be appreciated by numbers of school modern languages, who, while wishing to be with the forward movement, at the same time rcumstances often force them to heresy.

ards attributes the first reason for his heterodox tendency to the psychological differences in members of the same Form. Placing them roughly in two categories, first, the "bright," and secondly the "dull" and the "shirkers," he doubts whether the new spoon "made in Germany" is destined to feed the latter division so effectually as to make them resemble exactly their "bright" brethren. If we share your contributor's doubts on this score (and who does not?), we shall sigh with him for smaller classes.

For my part, I do not see any insuperable obstacle, in the case where classes are large, to the plan of dividing the boys into two or three groups for conversational purposes. Each of the groups could be dealt with in the time usually allotted to a French period. At the holiday courses arranged for teachers abroad, this plan is always adopted, so as to give each person an opportunity of making some real progress in the spoken language. If these smaller circles are deemed essential in spite of the advantages a residence abroad affords quite independently of the courses, how much more important does it become, here in England where we are concerned with ordinary boys not particularly keen to acquire fluency in speaking the particular language they are studying.

I do not know if Mr Richards's classes are graded, but, for my part, I consider the greatest obstacle to progress on reformed lines is the unhappy fact that it is possible for the lad who is advanced in all other subjects, but utterly ignorant of French, to be put in the Sixth Form, and for another who speaks French fluently (owing, perhaps, to his French parentage), but is behind in the ordinary English subjects, to be placed in the lowest Form.

Allow us to keep our boys in reasonably small classes from the outset until they leave school, uninterrupted all the while by intruders of all grades, and we shall be able to carry out the principles of the direct method to the letter; but, until we can persuade those whom it may concern to give us the necessary facilities, we shall have to fall back on some such compromises as Mr. Richards suggests in the latter part of his article.

William Ellis School, N.W. CHARLES ORCHARD.

A Common Auxiliary Language.

THE question of the adoption of a common language for all extra-national purposes, political, commercial, social, &c., has come more and more to the front within the last few years, so that it is rare to find a newspaper or magazine which has not discussed the object earlier or later. The fact that such a common tongue would be a great boon is undoubted, but the question as to what it shall be is not so easily solved.

During the International Exhibition in Paris in 1900 a society was founded entitled the "Délégation pour l'adoption d'une langue auxiliaire internationale" (6, rue Vavin, Paris), and this has since attained a very large measure of success. It comprises at present representatives of more than 250 learned societies and professional associations of all countries and has received the adherence of more than 1,000 members of academies and universities. Its purpose is to make choice of the auxiliary language through the intermediary of a competent international authority, such as the Association of Académies, for example, and it has just issued an urgent request that learned societies and professional associations will name a delegate to represent them when the time for a choice comes, that is, during the meeting, this year, of the Association of Academies. It is a curious fact that, looking through the list of the delegation, Great Britain is apparently the only country which has shown proof of

its indifference, no British delegate being recorded, except one from Wales, although the Colonies and the United States are to the fore.

It is probable that this results from two causes: first, the conviction which most Englishmen have that their own will be the international language; and secondly, the idea of teachers that in some way the adoption of a common auxiliary language will interfere with the teaching of French, German, &c. As regards the first, those who support the use of English are English people, and a certain number of foreigners, who with infinite pains and difficulty have learnt English, and do not wish to lose the profit this has gained for them; yet, let an Englishman travel through the by-ways of foreign countries, and he will find, not only that his English is useless to him, but also that the idea that it should be taught in every small school all over the world will provoke scornful laughter. If he, possessing a knowledge of the native language, tells the people of the country of his idea, they will ask him: "Why should we spend large sums of money, which could be better used, in order to make it perfectly easy for English people to travel anywhere, speaking their own language, and do business in any country, whilst the English themselves would not be burdened as we should be, because the language is their own?" Any sensible person will see that we cannot hope for the support of foreigners in making the study of the English language compulsory, and that unless they all consent to speak it our object cannot be attained. Of course, there are plenty to argue that in time English will, of necessity, be accepted, because foreigners cannot do without it; but the most sanguine do not reckon upon this happening for fifty years at the earliest, and meanwhile the need is a present pressing one. The Délégation does not propose to choose from any national tongue, having regard to national jealousies, French people, for example, being absolutely sure that French is, and must be, the only international medium.

Meanwhile Esperanto, a language perfectly simple, singularly accurate, phonetic, and logically correct, is in constant use amongst an ever-growing multitude of people in many countries.

Its adherents have arranged special technical sections, each having its secretary and array of correspondents in various countries, and being recruited from members of the legal profession, musicians, compositors, trade unions of various kinds, doctors, littérateurs, and others; whilst as to its practicability and adaptability as a speech medium, such men as the Dean of Durham, Prof. Skeat, Mr. Oscar Browning, M. Boirac of Dijon, and the late Max Müller bear witness.

Nor does it depend upon the opinion of one or two eminent men. In the summer of 1905, and again at Geneva in 1906, a company of some 2,000 people, from twenty nations, gathered for the express purpose of proving the adaptability of Esperanto for all the purposes of human life; it was at this congress that the different sections were arranged. The next International Esperanto Congress will take place at Cambridge, and will last from August 12th to 17th. Already notifications of those intending to be present—educationists, professional and commercial men, idealists, and others—are coming in from every country in Europe, whilst Siberia and Japan on the one hand, the States and Canada on the other, are sending representatives. Moreover, the University has advised the Senate to grant the use of rooms if needed; the town of Cambridge has put its municipal buildings at the disposal of the congress, and the Union Society has unanimously decided to give Esperantists the rights of honorary membersh the congress week, their debating hall having be for various important meetings. The last time was lent was in 1885, and Esperantists are du of the honour accorded them.

It has been frequently stated that we of this are trustees for the next; it therefore behoves us carefully into anything which may be for the com Seeing and hearing are believing, and though will not despise the opportunity of proving wh our coming guests are lunatics or wise men.

E. A. L

Mowbray House, Norfolk Street, W.C.

Absolute Systems of Units in Dynami

THE discussion on the "Teaching of Mechanics" by the British Association, of report has recently been published,[1] shows ho question the choice of units of force and iner several of the advocates of the "academic" which the unit of force is the *poundal*) entirely understand the "engineer's" system (in which inertia is the *slug*).

Perhaps a very elementary discussion of the volved, which has been found suitable for beginners, may interest those who have to subject.

When we speak of several bodies as each b pounds," say, we imply two things:

(i) The attraction of the earth on each is the is equal to five times the attraction in the certain standard body; *i.e.*, each has a definite

(ii) The behaviour of each of the bodies whe by a specified force is the same, the acceleratio by the force being just one-fifth of the accelera case of a certain standard body; *i.e.*, each has *inertia* (or *mass*).

It will be observed that inertia is a property itself: weight depends also on the attracting bod is thus a fundamental property of the body, w is not. On the other hand, weight is a much s to beginners, since weight, like any other for felt. As inertia and weight are always prop each other, beginners invariably confuse these t different properties, just as confusion would ari weight and volume were all substances of exactl density. (The confusion is partly due to the word "mass," since in non-technical language body "massive" means much the same as "weighty.")

Now we have the well-known standard b pound," of which innumerable copies exist, an vides us both with the unit of inertia (or, if to call it so, mass) and also with the unit Thus the most natural unit of mass is the poun most natural unit of force "the weight of a pou

In statics, where we are not concerned with use as unit of force "the weight of a pound," almost invariably abbreviated into "a pound."

In kinetics we are concerned both with force since we are concerned with the behaviour of bo the action of forces.

Our reasoning here is based on the experiment

(i) The acceleration produced in any body balanced force is proportional to that force (a direction of that force).

[1] Edited by Prof. John Perry, F.R.S. (Macmillan.)

dy's own weight produces in it an acceleration is roughly 32 ft./sec.² (but differs slightly in arts of the earth, being constant at any one ondon $g=32{\cdot}182$ ft./sec.² nearly).

ese we derive the equation: If an unbalanced lb. (weight) acts on a body the weight of which produces an acceleration a given by

$$\frac{F}{W}=\frac{a}{g}.$$

d in one way or another, is the fundamental dynamics.

ct of the *absolute* systems of units is to avoid occurrence of g in this equation and the others m it. In such an absolute system, the units of mass must be so chosen that when a unit force body of unit mass (and, therefore, also of unit acceleration produced will be unity.

done in two ways: (α) by a proper choice of force; (β) by a proper choice of the unit of

e take the pound as the unit mass: then the e is such as to give acceleration 1 to 1 lb., and is called the *poundal*. Since 1 lb. weight gives g to 1 lb., it follows that 1 lb. weight=

tion then reads: *measure of force in poundals = mass in lb. × measure of acceleration in*

This is also what is done in the C.G.S. system, *measure of force in dynes = measure of mass measure of acceleration in cm./sec.²*.

the other hand, we take *the weight of* 1 *pound* as the unit force, the addition "in London" sary, as the weight of 1 lb. varies slightly in rts of the earth. Then the unit mass, called that mass in which the weight of 1 lb. produces 1 ft./sec.².

s that 1 slug = 32·182 lb. (approximately 32). on then reads: *measure of force in pounds = mass in slugs × measure of acceleration in*

e of the absolute unit of angle in trigonometry ompared with this, its use avoiding any constant

itions $s=r\theta$; $\theta=0$ $\frac{\angle\theta}{\sin\theta}=1$.

ners, a general explanation such as has just is necessarily vague. The important thing is a simple numerical instance, and to make ar the way in which g enters the equation in three cases.

for instance, the question: *A force of 5 lb. s on a body the weight of which is 9 lb.; what ration "a" produced?*

simple proportion, a force of 5 lb. acts on a ight of which is 9 lb.,

$$\therefore \frac{5}{9}=\frac{a}{32}.$$

the "academic" system of units, a force of als acts on a mass of 9 lb.,

$$\therefore (5\times 32)=9a,$$

sing the force in poundals brings in g.

the "engineer's" system of units, a force of 1 a body of inertia $\frac{9}{32}$ slugs,

$$\therefore 5=\left(\frac{9}{32}\right)a,$$

sing the mass in slugs brings in g.

It is to be noticed that in each case the g enters the equation; by a proper choice of units we simplify the *appearance* of the fundamental equation, but the laws of nature remain unaltered.

It may seem unreasonable to bother beginners with three methods of dealing with the same question, but to do so here has many advantages.

The distinction between mass and weight being the real crux, and the relation which gives the acceleration fairly easy, it is well to begin with the simple proportion $\frac{F}{W}=\frac{a}{g}$. This postpones the discussion of mass, and has the advantage that problems where F and W are naturally expressed in tons or ounces are just as easy as those where they are expressed in pounds.

Later, when the meaning of mass must be discussed, and it is desired to explain what is meant by an absolute system of units, it will be found scarcely more difficult—if not actually easier—to explain both the systems, of which each casts light upon the other, than to explain either of them separately.

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Method of Using.—Lead shot, &c., is placed on the top pan until the zero of the scale coincides with the meniscus of the water in the glass jar. This is best seen by looking up from a point slightly below the surface of the water. Observations of the reading must always be taken from this point. Place the substance the density of which is required in the top pan. Note the reading when the hydrometer comes to rest. Now place the substance in the bottom pan, and again take the reading. The reading of the scale when the substance is in the top pan, divided by the difference of the two readings, gives the required density.

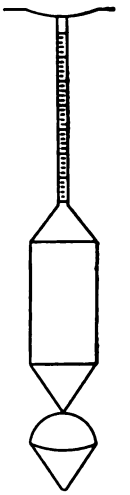


FIG. 1.—The Balance Hydrometer.

Example.—*To find the density of nickel-silver.*

Reading of scale with alloy in top pan = 8·20 cm.
" " " bottom " = 7·25

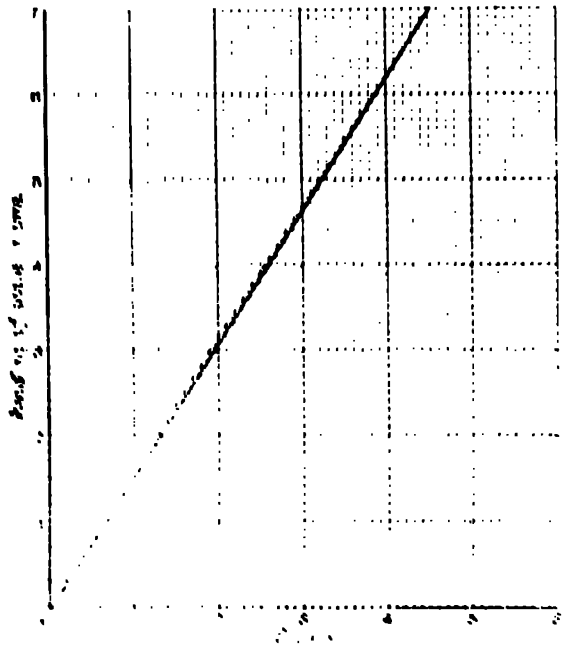
$\therefore$ Upthrust or loss in weight of alloy = 0·95

$$\text{Density}=\frac{8{\cdot}20}{0{\cdot}95}=8{\cdot}63$$

The hydrometer should prove of value in a junior physics laboratory, for it may have its "calibration curve" constructed in a similar manner to the dynamometer, thus giving rise to exercises in graphical work. In order to obtain the curve, start with the scale mark of the hydrometer at zero, and add weights, 1 gram at a time, until

the ends of the pan nearly rest on the sides of the glass jar. Plot the weights as abscissæ, and their corresponding scale readings as ordinates. The joined points, when the experiment is carefully carried out, will give a straight line.

Weight in pan in grams		Corresponding scale reading in cm.
0	...	0
1	...	1·55
2	...	3·10
3	...	4·65
4	...	6·20
5	...	7·75
6	...	9·30



Determination of the Density of a Substance Li
Water; e.g., a Piece of Wood.

The method is the same as before, but it is
to depress the scale, by means of lead shot, n
way in order to allow for the extra upthrust wi
in the case of a substance lighter than water.

Example.—To find the density of a piece of oc

Reading of scale with oak on top pan =
,, ,, without ,, ,, =

∴ Weight of oak =
Reading of scale without oak in either pan =
,, ,, with ,, lower ,, =

∴ Upthrust or apparent loss in weight of wood =

$$\text{Density} = \frac{1{\cdot}50}{2{\cdot}10} = 0{\cdot}71$$

It will be seen that the hydrometer may be
direct-reading instrument, thus saving a lot o
well as doing away with the using of weights.
greater accuracy, the brass scale, after being
should be lightly rubbed over when standing
water, so that any small adherent drops may b
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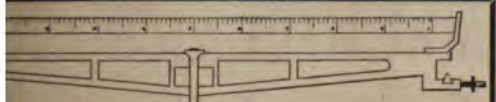

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To face first matter.

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GEOGRAPHY OF THE BRITISH ISLES.

By A. MORLEY DAVIES, B.Sc. (Lond.),
ssociate of the Royal College of Science.

I.

ETHER geography is best introduced to children by exciting their interest in the strange and distant, or by building upon tual knowledge of their immediate sur- s, is a question sometimes raised; to e obvious answer seems to be that the hods may well be used simultaneously. I dispute that too much reliance on the ethod does not conduce to accuracy; and who has acquired only inaccurate notions vn land, which he has in part seen, can possess clear ideas of distant lands that ever seen, however vividly he may realise f their peculiarities of detail. Yet ts continue to report that candidates show gnorance of the characters of their own The sense of perspective, of a correct icture of the main outlines of relief and ion and distance was almost entirely ab- eports one recently. Evidently there is g wrong in the ordinary methods of British geography.

sual text-book method is to take each briefly as a whole, and then describe it y county. Now the division of Britain nties is of considerable historical interest, h numerous readjustments, serves pass- l for modern local administration; but it ery little relation to the distribution of industry and commerce. Accurate know- our county system may be useful to a can- or a clerkship at the Local Government but it is valueless to a railway-clerk, a e sorter, or a commercial traveller. The ation of attention on these artificial areas vs it from those broad natural divisions hich the localisation of industries and f communication depend. It should be ough for any educated person to know outs on the map any county lies, and to idea of its approximate extent; attempts t more exact knowledge of county areas s are mere waste of time.

I propose to indicate in outline how the topography of Britain can be treated scientifically, so as to bring into interdependence what otherwise appear as a series of disconnected facts. But no cut-and-dried scheme suitable for any and every teacher will be suggested. Personal ideas and interests must largely guide every teacher. The common basis necessary for all successful teaching includes three things:

(1) A thorough realisation of the broad facts of surface-relief, which can best be acquired by the study of orographical maps, *i.e.*, maps coloured according to altitude. Such maps are to be found in most recent atlases; or for more detailed study of particular parts of Britain there are Bartholomew's excellent cycling maps on the scale of two miles to the inch.

(2) An elementary knowledge of the geological structure of Britain, towards which the new colour-printed map of the British Isles, published by the Geological Survey at the low price of two shillings, will be of great assistance. Those to whom a geological map is a meaningless muddle of colours will find an excellent introduction to the subject in the sixpenny "Guide to the Geological Model of the Isle of Purbeck" published by the Geological Survey.

(3) An understanding of the general climatic conditions of the British Isles.

Every teacher who is keenly interested in the subject will study the synthetic treatment of it in Mackinder's "Britain and the British Seas" (Heinemann).

In seeking for the primary natural divisions of Britain we find that while Scotland and Ireland can be treated as unities, England and Wales exhibit much greater diversity. There is, however, sufficient contrast between the north and west on the one hand, and the south and east on the other, to justify our treatment of these two regions as units equal in rank to Scotland and Ireland. Though no absolute boundary can be drawn between the two, the most convenient line to take as separating these two regions is a curving line from the mouth of the Tees to the mouth of the Exe, following approximately the geological boundary between the Lias and the Oolites. Except that it is breached by the Humber and by a few less important streams, this line forms a

watershed for its whole length, and is in many parts of its course a conspicuous natural feature. It loses its distinctness, however, in Dorset and Devon, and to a less extent in the Midlands.

We will now consider each of these four primary divisions of Britain under the several headings of Relief and Geology; Climate; Rivers and Communications; Industries and Town-sites.

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FIG. 1.—Diagram-map of the natural regions of the British Isles. Black areas are coalfields; dotted, uplands; lines with dashes are escarpments, the crest of the escarpment being marked by the unbroken line.

At its best, an escarpment runs in a very straight line for a considerable distance, and the only interruptions are clean-cut valleys crossing it at right angles—a few of these occupied by rivers flowing in the direction in which th dip, but many being dry notches at the the valleys that furrow the dip-slope. notches as these do not spoil the distinc the escarpment.[1] But when important flow in the opposite direction to the di strata, they and their tributaries cut sc into the escarpment that it largely loses tinctness. Such rivers are the Bristol A the Yorkshire Derwent.

In England the strata known as the Oolites (from the abundance of oolitic li among them) form a well-ma carpment-edged plateau e without much interruption f mouth of the Tees to the m the Exe, serving, in fact, as t tier of our area. This line ground is known by differen in various parts of its course shire Moors, Lincoln Heights, R ham Forest, Edge Hills, and wolds. This is followed to t by a broad vale of clay—inclu Fens, Vale of Aylesbury, and White beyond comes th escarp —Yorksh Linc shire East An heights, terns, an borough Instead, ever, of strictly to the O carpment one enc upon it places, th vening being th sent or tinct, viz. East Ri Yorkshir in the bo Dorset, and Sc In the latter region, owing to the strat nearly horizontal, the escarpments are up into a series of separate hills.

The Chalk dips under the clays of the district, but instead of this dip continui strata rise again on the south, the Chal ing another escarpment—the North Down

[1] Readers of Prof. W. M. Davis's very interesting and sugg book on "Physical Geography" (Ginn) will find the term "cu used to denote the whole of an escarpment-edged plateau dip down, to which the term "escarpment" is somewhat loosely e most English writers.

z between these two Chalk escarpments the London Basin (though strictly it is igment of a basin, its completion having ght in Belgium). The North Downs are great horseshoe-shaped escarpment, the limb of which forms the South Downs; eshoe is linked to the Marlborough carpment by the great Chalk plateau of Plain. The area enclosed by the horse- alled the Weald. Yet another Chalk nt forms the backbone of the Isle of nd Isle of Purbeck, between which and Plain lies the Hampshire basin, a repeti- e London basin on a smaller scale, with t occupying the place of the Thames

se escarpments rise to a height of 600 et above sea-level. For most of their escarpments are watersheds, but are cut casionally by river-valleys; thus the etween Oxford and Reading cuts across k escarpment, the Humber cuts across ite and Chalk, the Witham at Lincoln Oolite, and the Wey at Guildford the carpment. In addition to these river- e crests of the escarpments are notched

Diagram-section across a land of Vales and Escarpments. E, E, escarpments. Parallel lines denote softer rocks; perpendicular g. harder rocks. This section may be taken as giving in a very diagrammatic way a section from Gloucestershire to Sussex, the e vales and hills being, from left to right, Severn Valley, Cotteswolds, Vale of White Horse or of Aylesbury, Chilterns, London North Downs, Weald, South Downs.

ls by gaps from which dry valleys run dip-slope: the deepest of these notches t as deep as river-valleys, and, like them, e greatest importance as routes of com- n.

gion of escarpments and vales has cer- rtant negative features. Chief of these sence of coal, except in places at such ths that it is not yet worked. Other also are scarce—the Oolite belt yields ling-stone, and here and there (Northants land) valuable iron-ore. Chalk and its extensively quarried; the clay-vales pro- e-earth, and here and there are miscel- inerals, such as fuller's earth, sand, and but no metalliferous ores except iron-

thern and Western England (with -Although escarpments are found in this eir importance is overshadowed by that structures. This region might be com- an archipelago—the islands being repre- upland areas of varying size and shape, ntervening sea-channels by an irregular lowland, largely floored by clay, red d red sandstone. The principal upland as follows: (1) The Pennine Upland, from the Scots border to Derbyshire; (2) the Lake District, connected to the Pennines by the narrow neck of Shap Fells; (3) Wales, exclusive of the lowland border of the Bristol Channel, but inclusive of the upland parts of Shropshire and Herefordshire; (4) Devon and Cornwall. Minor upland areas are (5) the Black Country and (6) the Mendips.

The contrast between uplands and lowlands in this region is far greater than that between escarpments and vales in the south-east. Not only do the uplands attain to greater heights, but they are broad expanses of high ground instead of narrow ridges: thus they offer far greater difficulties to communication. Consequently they are in many places very thinly populated, and were so everywhere in former times, before modern industrial processes had come into use.

But this region is especially distinguished by its mineral wealth, and above all its coalfields, which lie mostly on the margin between uplands and lowlands. The distribution of population in this region has consequently come to be very uneven—dense on the coalfields, moderate and evenly distributed on the plains, very sparse in the uplands where there are no mines.

Of minerals other than coal, iron-ore is found largely in the coalfields, lead-ore in the Pennines and Mendips, tin- and copper-ores in Cornwall. Building-stone is found almost everywhere, slates only in the westernmost uplands (the Lake District, North Wales, Cornwall). Brick- and pottery-clays are found in the coalfields and in the red marls of the lowlands, while the finest china-clay is formed from the decomposition of the Cornish granites.

3. *Scotland* is very sharply divided into three parts—the Southern Uplands, Central Lowlands, and Highlands, the last-named being separated by the straight cut of Glenmore into the Grampian and North-Western Highlands, while a number of small lowland strips lie along its eastern coast (Caithness, the Moray Firth borders, and Buchan).

The Southern Uplands and Highlands are plateaux cut up to some extent by river-valleys, of which the Tweed valley is the broadest. Except in these valleys the population is extremely scanty, as minerals are wanting. All the coal, and consequently the great bulk of the population of Scotland, occurs in the Central Lowlands. These lowlands are so called in distinction from the other divisions of Scotland, but they include within their area hill-ranges, such as the Ochils and Sidlaws, of greater altitude and more rugged

character than the hill-ranges of S.E. England.

4. *Ireland* is a country whose contrasts with Scotland are the more sharply accentuated by reason of certain superficial resemblances. It has about the same area and the same population, but the population is uniformly scattered instead of being concentrated in one division. It can also be divided into a central plain and northern and southern hilly regions, but the latter are quite unlike the Highlands and Uplands of Scotland, since they consist of scattered groups of high ground, not continuous plateaux cut up by deep river-valleys. The coalfields of Ireland are few and small, and though anciently a great gold-mining land, it now yields only some iron and aluminium ores (in Antrim), and ornamental marbles in the north-west.

Climate.

The climate of a region includes its temperature and rainfall, considered not merely as to their average or total quantity, but also as to their distribution over the year. The rainfall of the British Isles has no strongly marked seasonal contrasts, and the average annual rainfall of different areas is sufficient for our purpose; but in the case of temperature the annual range is far greater in some parts than in others.

Our rain being mostly brought to us by the south-westerly winds from the Atlantic, the rainfall is greatest in the west and diminishes steadily eastwards. It is especially heavy on the western side of the great upland masses, and light on their eastern side and in the lowlands.

Our temperature in summer is chiefly dependent on latitude, though the Atlantic Ocean exerts a cooling influence on the land near it: the isotherms at this season run roughly east and west, the temperature diminishing northwards on the whole. But in winter the principal source of warmth is the latent heat set free in the condensation of water-vapour, and therefore the wettest regions are the warmest: at this season the isotherms run north and south. This remarkable course is part of the great northerly embayment of the isotherms which forms so marked a feature on the winter temperature-map of the world in the North Atlantic, and indicates the ice-free condition of European harbours in contrast with the ice-bound state of the American side.

1. *S.E. England* is relatively dry, and relatively extreme in its temperature-range, both of these features tending to become more marked to the east, with modifications due to the tendency of inland temperatures to be more extreme than those of the coast.

2. *N. and W. England and Wales* are much damper, but with a fairly dry margin to the east, especially on the east coast north of the Tees. They have a milder climate than S.E. England on their sea-borders, but a more extreme range of temperature in the uplands.

3. Of *Scotland* much the same may be said: the west coast is the wettest part of the kingdom and has very mild winters, while the east comparatively dry, with cold winters.

4. In *Ireland,* owing to the absence of extensive masses of high ground, the r much more evenly distributed, and is ev rather high. Hence the "Emerald I better suited for pasture, cattle-raising, a farming than for corn-growing.

WOMEN TEACHERS IN AMER

By H. W. Horwill, M.A. (Lond.), B.A. (C

IN no country has the doctrine of t lectual equality of the sexes been r vently preached and more generally than in the United States. That there s no discrimination between boys and gir offer of educational opportunities is the creed of all varieties of American wri speakers. The widespread practice of c tion is the most obvious example of its tion. But there is a striking, not to say exception. In educational matters the lies under one grave disability. Boys a may alike be taught, but only women m them.

The word "teacher," a common noun land, is in America allotted to the gender, and "she," not "he," is emp the corresponding pronoun in addres articles on school work. In America the a small minority of men make a living b ing does not prevent it from being quite to think of the average teacher as a wo as in England if we happen to speak of maker we say "she," although we all k a certain number of men make costume opposite sex. In American second primary education there is practically n for men as teachers except in private They may be appointed superintendents cipals, but outside such administrative po representation in the teaching professio only small but steadily dwindling. In t report of the U.S. Commissioner of E the statistics for the common schools of t country, including both primary and high show only 113,744 male teachers out of a 455,242, or a percentage of 25.[1] This lo has been reached by yearly decreases fro centage of 42·8 in 1880. The proportion teachers appears to vary inversely to d population. While the percentage for th country is 25, that for cities of from 8,000 inhabitants is as low as 10·9, and cities of over 8,000 inhabitants drops only 7,280 male teachers to 80,335 female take examples of large cities from all pa country we find the tendency uniform:

[1] These statistics, as those we [illegible] refer only to per engaged in teaching and [illegible] supervising offic separately classified in the Commissioner's

	Male Teachers	Female Teachers	Male Pupils	Female Pupils
...	238	1,997	50,633	48,696
...	1,166	11,408	312,882	309,319
...	187	3,503	98,549	100,969
...	151	1,541	40,224	41,358
...	156	1,234	23,605	26,184
...	18	813	14,917	16,623
...	94	1,237	34,904	33,908
...	56	1,654	40,608	43,425
...	301	5,015	140,277	138,906
...	27	850	20,174	20,943
...	57	854	23,017	23,324

ing one's eye over the tables in the re-
lights upon contrasts that are almost
Thus Atlanta, Ga., has only 8 male
ut of a total of 241; Bridgeport, Ct., 6
o; Wilmington, Del., 9 out of 252;
.Y., 8 out of 288; and Reading, Pa., 9
. Just across the Hudson River from
, Jersey City has 3 out of 600 (though
6 boys in its schools) and Hoboken 1
. Among other New Jersey figures are
out of 327, Paterson 8 out of 369, and
out of 235. Not one male teacher is
from Augusta, Ga.; Elmira, N.Y.;
l.; or Evanston, Ill. (the last-men-
osperous suburb of Chicago); although
teachers number as many as 105, 143,
o respectively.

es have sometimes been published of
tage of American boys who "never
contact with a male teacher." This
ously be difficult to ascertain, as the
omotion of children from one class to
o say nothing of the employment of in-
in special subjects, makes it possible
school reporting five female teachers to
very boy might, for part of his school
eive teaching from a man. But it is
o exaggeration to say that the con-
of male teachers to the education of
boys in the "public schools" is so
o be practically a negligible quantity.

nt opinions have been expressed of the
hese conditions, but certain conclusions
egarded as established. In the first
e administration of secondary and
hools is, in America, much more largely
ngland, in the hands of persons who
d but a brief apprenticeship in actual
Male teachers of any ability who fail
a principalship within a few years turn
ome more promising occupation, and
cancy occurs there is no large body of
ned by experience in the class-room,
h to draw.

, the preponderance of women gives a
ias to the curriculum. Some of the
mmissioners expressed their surprise at
men teaching woodwork to boys; it
unsuitable employment and too great a
a woman." And the woman will cer-
ape such tasks if she can. It is well
t women students in the universities
t are known as the "cultural courses,"
f them attempting any scientific study.

Women teachers show the same preference. Writing in the *Popular Science Monthly* for September, 1904, Mr. R. L. Sandwick quotes the case of a rural community in California where it was suggested that a little instruction in the laws of the pulley, lever, wheel and axle, &c., would be of service to the lads in view of their future work on the farms. After a short trial the experiment broke down. The teachers were women, and were not interested in mechanics. Mr. Sandwick believes that the steady decrease in the proportion of boys who are studying physics and chemistry—a decrease "out of all harmony with modern industrial demands"—is due in large measure to the meagre scientific equipment of women teachers.

There is no such general agreement as to the next point—the efficiency of women teachers in training the characters of boys. On this subject most people are content with *a priori* generalisations. Certain qualities are more commonly found in women than in men; therefore these qualities will predominate in boys trained by women. Thus the apologist of the present system discovers in these boys a gratifying tendency to unselfishness, sympathy, and gentleness, while the objector detects in them an excess of sentimentalism and a lack of manly sturdiness. One of the Mosely commissioners reported that the preponderance of women teachers was producing "an effeminating effect on the character of American boyhood"; another noted as its consequence "a strange and indefinable feminine air coming over the men." This criticism was not, on the whole, well received in America, and many replies were forthcoming. The Chicago *Tribune* characteristically appealed to the highest authority possible by inviting the schoolboys of its own city—the teaching staff of which then included 4,746 women and only 390 men—to declare whether they were becoming effeminate, and their testimony in rebuttal gave much comfort to the anxious inquirer. More convincing evidence, perhaps, is that which is ready at hand to anyone who has had personal experience of the American boy, especially at or near the Fourth of July, or, in fact, to anyone who reads the American papers regularly. It happened oddly enough that, just at the time when the Mosely report appeared, the New York Press was publishing day by day instances of astounding juvenile lawlessness throughout a large section of the city, a section where the common school is supposed to exert an especially refining influence. The "effeminate" small boys of New York were persistently making unprovoked and deadly attacks upon automobilists and even upon travellers in old-fashioned horse-carriages; to such an extent, indeed, that it was seriously proposed to guarantee police protection by a certain route only, abandoning the attempt to put down this disorder in general, and leaving drivers who went through other streets to do so at their own risk.

The belief that the preponderance of women

teachers impresses upon the boys feminine characteristics, whether of gentleness or weakness, has, in short, no support in facts. The New York *Churchman* has suggested in a leading article that this belief is due to a neglect to observe accurately how the mind of a boy is really influenced by his surroundings, and that the juvenile "hoodlum"—*Anglice* "hooligan"—is produced not in spite of, but largely because of, this preponderance. It is pointed out that the task of wisely controlling and guiding the energetic impulses of the boy, so much more aggressive than those of the girl, can only be accomplished by a teacher who has himself experienced them. The woman teacher, on the other hand, is in the boy's world an alien, and is respected for her good qualities without being recognised as a pattern to follow. "Her counsels," continues this editorial, "are promptly discounted as the speculations of an outsider who has no understanding of that outlook upon life enjoyed only by members of the superior class. For the cultivation of his manly aspirations he has to turn to the society of his schoolfellows. His teacher's womanly ideals he admires for girls, and rejects for himself. His own manly ideals he has perforce to originate. The resultant public opinion of his order is therefore essentially of the barbaric type, mitigated, not by the influence of a senior whose surplus of energy has been transmuted from savagery to manly strength, but by the fear of the patrolman."

It is worth noting, by the way, that there is one phase of a man's training with regard to which the woman teacher is more obviously than in others an alien and an outsider. The functions and responsibilities of government are taught in most American schools under the name of "civics," and distinguished Americans have sometimes been pleased to commiserate us on the absence from our curriculum of any such stimulus to patriotism. In America the teacher of civics is usually a person who has no vote, who has no personal acquaintance with the working of political and party institutions—except in so far as "pull" may assist toward promotion—and who takes little, if any, interest in the political problems of the day. Here again there are opportunities of testing the tree by its fruits.

On the whole, then, if the question of educational efficiency alone is considered, the balance of argument appears to be strongly against the existing system. It must be remembered, too, that the prevalence of this system is not the result of any deliberate choice on educational grounds. The arguments in its favour are an afterthought. They were not discovered until the country woke up to the fact that the regimen of women had become actually established. The present stage has been reached by a process of drift, not of reasoned conviction. The Civil War, by diverting so large a proportion of the male population to military uses, gave the schoolma'am her chance. Her hold was confirmed by the industrial and commercial activ years following, when ambitious y found other careers more attractive tha cational. Even to-day the proportio teachers fluctuates with the fluctu national or local prosperity. In the s 1902, for instance, it was reported tha an increase of business was leading to of men teachers. "The male part of ing population," said the Superint Public Instruction, "is decreasing a rate, because times are prosperous an they can make more money in other times should change for the worse, t men who have formerly taught would again, obtain certificates, attend insti go back into the schoolrooms."

It would be easy to accumulate to show that, after all, the main r the employment of an excess o teachers is the economic one. In the Dr. W. H. Maxwell, superintendent public schools of Greater New York president of the National Education tion, "to increase the efficiency of t school teaching force by increasing th of efficient men teachers—men who wo their lives to the work—would involve increased expenditure of money." An earnestly it may be contended that w superior to men as teachers for boys, i ficant that when once the finan culty is surmounted these argument longer heard. There are, for exam expensive private schools where the charged make it possible for good sala paid. In making appointments in suc principals and governing boards prefer the old-fashioned plan. And it is a cu that, while women are in so great a m teachers in primary and secondary sc exactly opposite tendency is found whe to higher education. In this sphere, ever reason, places are found for men are found for the places. The faculties colleges consist of men only; in co-e colleges the proportion of women pro far below the proportion of women stu it is not unusual to find a considerable n men on the staff even of those colle have been established for the education alone.

Plant Life Studies in Garden and School. F. Jones. xii+200 pp. (Methuen.) 3s. 6d. tantalising example of a good book which migh made very much better by greater care in c The course laid down is essentially practical i but some of the instructions—especially in the of the book—are too vague to be of much help t The frequent use of unexplained technical te unfortunate. In spite of these drawbacks, the whole is a valuable one, and may be recomm confidence to teachers. The illustrations, 320 are excellent.

ON ENGLISH BOOKS.

By W. H. D. Rouse, Litt.D.
master of Perse School, Cambridge.

ES. Good day, Thrasymachus; what time it is since we saw you. Whence hither bound? You seem like one in

chus. Aye, indeed, Socrates, and well I have just been listening to a lecture e my blood boil.
hat was that?
eon, a Sophist, has been discoursing rowds upon the teaching of English but he talked such nonsense that I bounce out into the street.
did he say?
ve a long list of the best authors for ing, dull dogs all, and left out those are of any use.
ow long is it, Thrasymachus, since you self with this matter? Last time you we knew you as a champion of natural a doughty champion indeed, for no stand against you. We thought you sufficiently that only natural philo- of any use, and all else was a waste

s; but if you do waste your time, you waste it to some purpose.
I agree with you, my friend; it is well thing with a purpose. So you have ish literature since we met last, and ould show us how it is to be taught? be indeed a great boon; there are know, who say it cannot be taught

are fools, Socrates; I say it can be

you would convince me of that, us; for my part, I am not fully assured mind, and I am even not sure what rature is.
at is easily told. Books!
not the teachers of English litera- ooks?
hey do, and that is why they fail; they hrow their books aside, and go into r, and take off their coats, and teach rtsleeves.
they throw books aside, how can they ?
need not teach books; they should let of English literature flow pure and un- ugh the youthful mind.
thought we had admitted that English nsists of books?
s; but most of the books are classics, st majority of our teachers cannot e beauties of our classics with advan- say, Hang classic literature; browse

hat books? Believe me, I am puzzled; ht the classics were also books. Or do you distinguish English literature from the classics, and do you mean by classics Greek or Latin?

T. Heaven forbid! I hope we shall soon see the last of that pernicious stuff, with its fairy stories and heathen myths. Natural philosophy has given the death-blow to Latin and Greek, I hope.

S. Then what do you mean by classical literature?

T. English classical literature.

S. But how does English classical literature, that is, how do English classical books, differ from other books? Tell me, what is the meaning of classical?

T. Oh, bother it, I don't know; but I know the classical books are useless.

S. But if you do not know what a thing is, how can you know that it is useless? Or look at the matter thus: if we desire to know the meaning of a word which we do not know, how are we to find out?

T. Look in the dictionary.

S. So we will. The dictionary explains classical authors as the standard authors in each literature. Now tell me, is not the standard that by which things are judged? As, for instance, the standard pint and the standard foot-measure are those by which other measures are judged?

T. Yes.

S. And if the other measures fall short of or exceed the standard, they are judged to be inferior?

T. I grant it.

S. The standard, therefore, is superior to that which is not the standard?

T. I suppose so.

S. English classical literature, then, is superior to other English books?

T. So it would seem.

S. And those which remain are inferior?

T. That follows, if we were right in our admissions.

S. Do you think, then, that in teaching English literature, we must neglect the standard or superior books, and browse on the inferior books?

T. My good Socrates, you cannot bluff me. I tell you that almost any books will do, all the books you can get hold of; get the best out of them that can be got.

S. Quite true, Thrasymachus; but do we get good from a good thing or a bad thing?

T. From a good thing, of course.

S. And more good from that which is superior, but less from that which is inferior? And from a bad thing we can only get what is bad?

T. To be sure; what is the use of all this talk?

S. Perhaps nothing, Thrasymachus; but let us see. You have admitted that the standard books are superior to the rest?

T. I suppose I did.

S. Then more good is to be got from the standard or classical books of English literature than from the others?

T. Look here: once for all, I am Goth enough to urge, that at first it matters little what is read

so long as the habit of reading seriously and acquisitively be gained.

S. But it does matter afterwards? Or do you think that it never matters what books we read?

T. How can you ask such a foolish question, Socrates! Of course it matters whether we read Greek books or books on natural philosophy.

S. But not at first? and by that you mean in childhood and youth?

T. I do.

S. But in childhood it is said that we easily take impressions, and form habits, which afterwards are hard to change. Or do you think otherwise?

T. No; I agree with that: it is obvious.

S. Does it not matter, then, more at first than afterwards what books we read?

T. I am Goth enough to say, No, so long as the habit of reading seriously and acquisitively be gained.

S. Is not the habit of reading acquisitively the habit of keeping the impressions and the information which come from reading?

T. Yes, yes.

S. Do not be impatient, my friend; but tell me, if we read acquisitively a bad or an inferior book, the impressions which we keep must be bad or inferior?

T. Yes, and so we must avoid these books when we grow older.

S. Were we wrong, then, in admitting that the impressions made on the youthful mind are stronger and more abiding?

T. I tell you, he should browse on any books he can get hold of.

S. Is browsing, then, different from reading, or hearing, or learning?

T. Yes; it is more easy and superficial.

S. And easy and superficial reading differs from serious and acquisitive reading?

T. Why, my good fellow, they are far as the poles asunder.

S. If, therefore, a child accustoms himself to read easily and superficially, he cannot gain the habit of reading seriously and acquisitively.

T. No. But we must think more of the stuff in literature, and less of word-painting.

S. I see, Thrasymachus, that we have been forgetting the real point. It does not matter, then, how the child reads, or what he reads, but we must think of the stuff he reads. What sort of stuff ought the child to read?

T. I will tell you that easily, Socrates, if you will drop your quibbling.

S. My dear Thrasymachus, I did not mean to annoy you; but I thought that you would not mind instructing one more ignorant than yourself. However, I am all ears; speak on: I will not interrupt you, unless I do not understand; and then you will enlighten me, will you not?

T. With pleasure. Now then: you ask me what a child ought to read; I can best answer you by telling you the experience of a very great natural philosopher, Hugh Miller. He found the process of acquiring knowledge a dark one, until his mind awoke to the meaning of the derful of all stories, the story of Jos which the art of reading became clear the art of finding stories out of book most delightful of his amusements. Th the other Bible stories, followed by Giant Killer and many other such stor this he went on to books which the l content to write commentaries upon, he found to be quite as nice children's any of the others. Old Homer, he fou admirably for little folk, especially in th but also in the Iliad. He read to son indeed.

S. Indeed he did; but I confess to so of perplexity, for these books I thought sical. Homer even wrote in Greek, did

T. Possibly; what does it matter?

S. Nothing perhaps; but if natural has given the death-blow to Greek, child longer be able to read Homer's stories,

T. Oh yes, they will, in English tran

S. But if a book is translated into En it cease to be a classic, that is, a sta superior book?

T. No, of course not.

S. And the Bible—is not that a class

T. The chief of classics.

S. And Jack the Giant Killer is a fai

T. Yes.

S. We must have been wrong, then, as we did just now, that Greek books tales and heathen myths and all class be eschewed?

T. How you do twist my words! I anything of the sort. I mean, as I tol now, that we must pay attention to the s is contained in these books, and not to

S. If, then, we desire to find stuff su in the books we read, we must choose bo contain such stuff.

T. We must, to be sure.

S. And if the child browses upon ot than those which contain this stuff, he w amiss?

T. He will; but he must not worry grammar. Hang grammar!

S. With all my heart, if it is a bad t tell me, Thrasymachus, what is gramm not correctness in expression?

T. I told you that the expression matter one pin.

S. Not even if it be incorrect?

T. Why should it be incorrect? Eng are written in correct grammar.

S. But if the grammar of a book is ir it possible to express the meaning correc if the child does not understand the gr what he reads, when it is correct, can stand the meaning which is intended?

T. This is quibbling again; of cours understands.

S. I am glad of it, Thrasymachus needs no teachers. But does he know find these stories which you wish him to

but he must browse on all the books

[they do not contain these stories, will
m in the books by browsing?
reads all the books he can get, he will

uppose the books he can get do not
m, will he find them then?
e is sure to be able to get the books.
well, if you will have it so. But would
them sooner and more easily, if he were
they are to be found?
perhaps.
perhaps, my dear Thrasymachus; I
affirm many things as certain, but this
n, that he will find them sooner and
, and with less waste of time and
nd who should tell him where these
to be found? For there are many

ou or I, or anyone.
if we did not know ourselves?
urse not, foolish man.
there should be someone who knows,
e child where he should look?

his would be the teacher?
a like.
f the child should not understand the
or the words, or the meaning, should
cher explain them to him?
e will understand, or I am mistaken.
nay be mistaken, my friend; we all are
mistaken. It is not sufficient, then, to
am of English literature flow pure and
rough the youthful mind?
not understand you.
er do I, and that is why I ask. But
at we should desire for our child a
o understands where the most good is
, and can direct the child to it, and if
an explain that which needs explain-

can't do it.

EFECTS IN THE TEACHING OF HISTORY IN SCHOOLS.

F. J. C. Hearnshaw, M.A., LL.M.
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III.

receding article[1] I treated of various
s in the teaching of history due to the
[a definite and precise *aim* on the part
er, and I tried to indicate what educa-
oses history, in the hands of a good
y be expected to fulfil. In the case of
ren, it may be employed to quicken the
, to widen the mental horizon, to en-
mpathies, to elevate the moral nature,
patriotism. With pupils during the middle years of their school career, it may be used to train the judgment, to give power in arranging and interpreting facts, to provide practice in the reading of authorities, and exercise in expression and literary style. For more advanced students it is valuable as an aid in developing the sense of civic duty, and as a means of education in that kind of research which is alone applicable to the problems of current politics, research which consists in the weighing of doubtful evidence, the balancing of conflicting authorities, the judging between antagonistic probabilities.

I must now turn to discuss briefly the questions: (ii) What historical materials are the best for the teacher to employ? (iii) What modes of teaching are the most effective.

Materials.

The choice of material will be determined mainly by consideration of the age of the pupil. Children in the first stage of their educational advance will require to be lured from the narrow prison-house of their selfish preoccupation and led into the large region which lies behind the restricted horizon of their little lives by a wizardry of words to which the term "history" can be applied only in the negative sense that it connotes something which is *not* present reality. Fairy-tales from Andersen and Grimm, or from the more modern collections of Mr. Andrew Lang; stories based on the fascinating legends of the Arabian Nights; narratives of the adventures of the heroes of the Iliad, the Odyssey, the Aeneid, the Sagas—these will be the materials by means of which the historic imagination of the young child will be aroused. If he can be made to realise something of the meaning of that illusive but all-important date "once-upon-a-time," that is, if he can be made to grasp, however feebly, the idea of a remote and unfamiliar past; if he can be got to picture to himself, however monstrously, a strange and distant land, the foundation of historic knowledge will have been laid. Then may follow the exquisite stories of the Bible; after these, tales of the great men of universal history;[1] finally, narratives, in strictly chronological order, though without definite statement of date, of the makers of English history.[2] We may suppose that the covering of this preliminary course of study will occupy the child until he reaches the age of ten years.

In the next period, say on the average from the tenth to the fourteenth year, more serious work will be undertaken. The worlds annexed by the childish imagination will have to be divided into two groups, the real and the unreal, or perhaps more exactly the seen and the unseen. That is to say, history proper will have to be distinguished from legendary or doubtful story. It is at this point, I think, that local history can, when it is available, be used to the greatest advantage.

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[1] See The School World, February, 1907.

[1] *E.g.*, as told in A. R. H. Moncrieff's "Heroes of European History" (Blackie).

[2] Based, *e.g.*, on Messrs. Black's series, "History in Biography," or on Prof. Church's "Stories from English History" (Seeley).

Happy the towns whose records, like those of London, York, Norwich, Bristol, Southampton, touch the national history at many points! The child who can be taken to see prehistoric implements, Roman walls, Norman castles, Gothic churches, Tudor houses; the child who can be told that through this gate such and such mighty men passed, from that quay such and such voyagers sailed, is enabled in a peculiarly easy and enduring manner to link together in the bond of verity the past of his imagination and the present of his senses. But general history taught from the local point of view is necessarily fragmentary; the fullest municipal records come into close contact but now and again with the story of the nation. The next step is to give to the rapidly developing pupil a connected and orderly view of the history of England. The whole story should be told in however scanty an outline: it is fatal to begin to pick and choose "periods" at this early stage. Mr. Townsend Warner's "Brief Survey of British History" (Blackie) gives in 250 pages a masterly summary of the complete range. Prof. Tout's "Book I." in Messrs. Longmans' Historical Series for Schools covers the same ground, and it has this advantage, that it can be supplemented at later stages by "Books II. and III.," which go over the ground again, each in fuller detail but after the same method. It is essential, however, that at this period not too much detail should be given. The great landmarks should be fixed; the leading dates ineradicably planted; the chief actors in their main *rôles* made for ever familiar.

I am inclined to hold that it is well during this second stage of the pupil's educational career not to wander beyond the confines of British history except in so far as it is necessary to do so in order to make British history intelligible. Perhaps, however, in some cases, towards the end of the period, some such book as Miss Wilmot-Buxton's "Makers of Europe" (Methuen), or Mr. M'Dougall's "Landmarks of European History" (Blackie), or Mr. Dixon's "Main Landmarks of European History" (Clive), might with profit be read. But it is in the final stage of the ordinary school course, say from the age of fourteen to the age of seventeen, that general European history has its proper place. It is far too complex to be understood at all adequately at any earlier point. In this final stage the study of history will make large demands upon the time and the thought of the pupil. It will also imperatively call for the skill and the undivided attention of a specialist teacher. No form-master or form-mistress can be expected, among the multiplicity of class duties, to acquire the knowledge or devote the care required for the successful employment of history as an instrument of education when pupils get beyond the elementary steps. First, English and imperial history will have to be reviewed in detail with increasing attention to its constitutional, economic, and international aspects. "Source-books"[1] will be brought into requisition; books of "Illustrative History"[1] will be used; t of English historical literature will upon;[2] the resources of the school be brought to bear.

Then, as a wider realisation of the history is gained by the pupil, he will what may be regarded (so far as subje concerned) as the goal of his historic in school, a knowledge of the great m humanity, as a whole, commonly call lines of general history. Using such Dr. G. B. Adams's "European Hist millan) as a text-book, he will study t ment of Greece and Rome, the course barian settlements, the formation of the conflicts between the Crescent and the movements of the Renaissance a formation, the voyages of exploratic covery, the evolution of Modern Eurc New World.

Methods of Teaching.

As in the case of materials, so in methods of teaching, the age of the grand determinant. Among the defect noted by inspectors and others are herence to a single text-book and ex ployment of the lecture form of instru both text-book and lecture have p properly graduated scheme of instruc pupil in the mid-period of his school co book cannot without irreparable loss b with; for advanced students an occasi is of the highest value in stimulating summarising results, in opening up n ideas. In the case of young childr method is, of course, the only one wl employed. It is the task of the teac peculiarly enviable one—to tell by wor to quick and eager ears the wonders o lore. How intensely do some of us, as in years, wish that we could hear for tl and with the old zest the tales of H Perseus, and Aladdin! Our wish cann fied; but there remains to us inaliena all our lives the hardly inferior joy of tel generations of children the old stories t them, as they did long ago to ourselve of fairyland. But even when the fair is past, oral teaching will for a long t the staple method of instruction. It is teacher to go over a lesson point by po class before it is "set" for home-work has been studied, it is essential that by system of questioning and by a symp couragement of questions on the part his knowledge should be tested, his ideas corrected, his imperfect informat mented. The clearest and most luci contains terms and phrases unintellig child-mind and liable to serious and eve

[1] See list given in Leaflet No. 1 issued by the Historical Association, 6, South Square, Gray's Inn, London.

[1] *E.g.*, the series issued by Messrs. Horace Marshall materials collected in Traill's "Social England."

[2] *E.g.*, the admirable and inexpensive "English Scho by Dr. Rouse (Blackie). Mr. Edward Arnold publishes "Gateways to History," with companion volumes on lit graphy, by means of which the task of examination is mu

tation. One feels, for example, that
o defined a Papal bull as "a peculiar
, found in Italy, which does not give
received insufficient oral instruction.
owever good a text-book may be, it re-
iculate, almost inanimate, except in so
ving voice and enthusiastic spirit of the
dle it into vitality and reality.
ern teacher, especially if he be fortunate
e able to devote the whole or the major
time and attention to history, will find
ible aids provided for him. Such a
ok" as that of Miss Kendall (Mac-
supply him with most vivid and in-
ntemporary narratives of the leading
English history. The school library
ish him with the potent assistance of
d historical novels, which, as Carlyle
o much to make the pupils realise that
ne ages of the world were actually
ng men, not by protocols, state papers,
s, and abstractions of men."[1] He will
so easy to get hold of good historical
ass purposes. The Navy League (13,
eet, London, S.W.) issues an excellent
British Empire; but for the rest he will
scover, as I for my own part have
t is necessary to make his own. It is
that no enterprising firm of carto-
s issued a series of maps to illustrate
tory. History cannot be taught apart
aphy; neither subject can be taught
ps. Probably the best plan available
s to take Dr. Gardiner's atlas (Long-
the main outlines of the map required
verything save the most prominent
ien rule the tracing into squares and
square by square on canvas. A suf-
urate map is thus obtained with little
xpense; the map should, if possible, be

useful adjunct to the teaching of his-
"Time Chart," described fully by the
Withers.[2] It does for time what maps
ms do for space; it brings the
help of the imagination in realis-
tinuity of history and the duration of
lly, a large number of historical pic-
graphs of the portraits of historical
and reproductions in facsimile of his-
ents are now available for use in
here can be no doubt that if they are
used, that is to say, if they are kept
ubordination to the main and serious
the lesson, they render service in
interest and in lending reality.
means, and by others which will sug-
lves to the skilled and earnest teacher,
e present defects in the teaching of
be removed, and history will more and
take its proper place in the front rank
cts comprised in the curriculum of a
ition.

[1] Miss Nield's "Guide to the Best Historical Novels and Stories."
[2] "Teaching and Organisation" (*Cambridge Univ. Press*), p. 192.

PARAPHRASING IN PRACTICE.

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II.

IN the last article[1] it was shown how the elements of the art of paraphrase might be taught by restricting the reading to a few selected authors. In the present article we have to consider the next stage in the pupil's development, and instead of naming authors specially suitable from our present limited point of view, we shall refer as far as possible to types of literature which we think should be normally read at this stage and which will now best afford the requisite training.

Narrative poetry will still be largely read, but if it be at the same time didactic or semi-didactic, the horizon of paraphrase will be perceptibly widened; for we shall be making an easy transition from the concrete to the abstract, and be approaching the realms of fancy by the path of reasoning. If we may venture, after all, to mention names, we should say that Goldsmith will be found to mark the type we have been trying to indicate, as the following passage may show.

> Thus every good his native wilds impart
> Imprints the patriot passion on his heart;
> And e'en those ills, that round his mansion rise,
> Enhance the bliss his scanty fund supplies.
> Dear is that shed to which his soul conforms,
> And dear that hill which lifts him to the storms;
> And as a child, when scaring sounds molest,
> Clings close and closer to the mother's breast,
> So the loud torrent, and the whirlwind's roar,
> But bind him to his native mountains more.

It will be seen here that there is no real difficulty of language, and that the general sense is perfectly clear; but the vein of moralising runs through it and seems to the young pupil to be teeming with unseen difficulties. The epithets are not numerous, but even where they are in form more or less conventional they are by no means otiose. The simple metaphor which concludes the passage will demand just that amount of skill for its neat rendering into prose which may be required from candidates of the junior grade.

If it is desired—as it must be desired—to continue reading which will give a special training in literary allusion, the only difficulty will arise from embarrassment of choice. But we think that the best author for our purpose at this stage will be found in Byron, for in addition to the wealth of his allusions we shall have the added advantage, from our present point of view, of his diffuseness and faulty constructions. Two stanzas from the "Ode to Napoleon" will aptly serve as a type of exercise, where the thought is expressed so epigrammatically that, although the meaning is lucidly clear, the necessary expansion involves considerable care.

[1] The School World, January, 1907.

The Spaniard, when the lust of sway
Had lost its quickening spell,
Cast crowns for rosaries away,
An empire for a cell;
A strict accountant of his beads,
A subtle disputant on creeds,
His dotage trifled well
Yet better had he neither known
A bigot's shrine, nor despot's throne.

* * * * * * *

But thou, forsooth, must be a king,
And don the purple vest!
As if that foolish robe could wring
Remembrance from thy breast.
Where is that faded garment? where
The gewgaws thou wert fond to wear,
The star the string, the crest?
Vain froward child of empire say
Are all thy playthings snatch'd away?

Pastoral poetry will be found very useful at this stage, because it presents a picture of natural scenes in idyllic language; simile, metaphor, and ornate epithet will abound, and these always must form the very backbone of the difficulty of paraphrase. The preservation of vocabulary is easily obtained by requiring, for instance, a description of the landscape in "L'Allegro," while a more formal and equally valuable exercise is provided by paraphrasing such a passage as this from the same poem:

Straight mine eye hath caught new pleasures,
Whilst the landscape round it measures;
Russet lawns, and fallows gray,
Where the nibbling flocks do stray;
Mountains, on whose barren breast
The labouring clouds do often rest;
Meadows trim with daisies pied,
Shallow brooks, and rivers wide:
Towers and battlements it sees
Bosom'd high in tufted trees,
Where perhaps some beauty lies,
The cynosure of neighbouring eyes.

The great use of reading Shakespeare's historical plays is too obvious to require more than passing comment, and examination schedules will keep the fact sufficiently before our notice.

So far we have said nothing of the use of prose in the teaching of paraphrase. In the preliminary stage, indeed, it must be recognised that absolute simplicity in prose is so essential that paraphrasing has no place; but now, when authors must be presented to the pupil in their own proper dress and order, much useful study in the choice of words, the sequence of ideas, and the connotation of terms may be based upon a reasonable use of paraphrase. The difficulties, however, and in a sense the precise object in view will be different, for the very fact that prose order has been substituted for poetic form will have removed one great stumbling-block from the young pupil's path. And yet the diction, although, possibly, not poetic or even archaic, may be so literary in character as to seem a new and *strange* tongue to the junior candidate. He will probably do best by making a start w simpler passages from Macaulay, such stance, as are to be found in the Lives smith and Johnson." The construction comparatively clear, and the language wi as to give him unbounded practice in tion of "so-called synonyms." As examples of such passages we cite one f of the books just mentioned.

In "The Traveller," the execution, though c much praise, is far inferior to the design. No p poem, ancient or modern, has a plan so noble, same time so simple. An English wanderer s crag among the Alps, near the point where countries meet, looks down on the boundles reviews his long pilgrimage, recalls the varieties of climate, of government, of religion, of nations which he has observed, and comes to the conc or unjust, that our happiness depends little institutions, and much on the temper and regul own minds.

We may observe in passing that not valuable part of the paraphrasing of su prose exercises lies in the fact that a co portion of them needs no paraphrasing The other passage is a trifle more diff because the vocabulary is slightly more

Johnson saw with more envy than became man the villa, the plate, the china, the Brus which the little mimic had got by repeating, w and gesticulations what wiser men had writt exquisitely sensitive vanity of Garrick was g thought that while all the rest of the world wa him, he could obtain from one morose cynic, w it was impossible to despise, scarcely any con acidulated with scorn. Yet the two Lichfield many early recollections in common, and with each other on so many points on sympathised with nobody else in the vast popu capital, that though the master was often the monkey-like impertinence of the pupil, a by the bearish rudeness of the master, th friends till they were parted by death.

Following the plan of our previous shall now give a number of types of which can be made to fit any piece of ture the form happens to be reading in our opinion are helpful and, indeed, mechanical aids to paraphrase proper.

(1) Deduce the meanings of the follow from the following addi ional instances o [*Note.*—An excellent instance of this ty tion is to be found in the questions ap Mr. C. T. Onions to the Carmelite "The Deserted Village."]

(2) Analyse this poem into its diffe noticing especially the transitions from to another. [*Note.*—Very suitable poe stage are Milton's pastorals.]

(3) Write an essay on "National C basing your remarks on "The Travelle

(4) Collect instances in the author of mixed metaphor.

and with historical particularisation the passage. [*Note.*—Many poems will ıch material, notably "The Traveller," ," Milton's "Sonnets," and a great yron.]

lain, and contrast with modern use if the following words. [*Note.*—Such ighteenth-century uses as vulgar, pre-ı, nice wit, sick, &c., will occur to every-

ıt expressions in this poem have become in the language?

te out in prose order the following lines. ie the sequence of thought in Gray's or Shelley's "Ode to a Skylark."

re in your own words the substance of oration in the Forum, so as to show radually leads up to his real purpose.

ıclude by offering a few selections of mostly taken from recent Local xaminations.

: the full meaning of the following pas-mple prose:

'er merit, not so deep a maim
be cast forth in the common air,
I deserved at your highness' hands.
ınguage I have learn'd these forty years,
tive English, now I must forgo:
ow my tongue's use is to me no more
an unstringed viol or a harp;
e a cunning instrument cased up,
ing open, put into his hands
nows no touch to tune the harmony.

(Shakespeare, *Rich. II.*)

ıot stay behind you: my desire,
arp than filed steel, did spur me forth;
all love to see you,—though so much
t have drawn one to a longer voyage,—
ıusy what might befall your travel,
:illess in these parts; which to a stranger,
d and unfriended, often prove
nd unhospitable: my willing love,
ıer by these arguments of fear,
in your pursuit.

(Shakespeare, *Twelfth Night.*)

rite in your own words:

an oath: if not the face of men,
ferance of our souls, the time's abuse,—
be motives weak, break off betimes,
:ry man hence to his idle bed;
ıigh-sighted tyranny range on,
h man drop by lottery. But if these,
ı sure they do, bear fire enough
lle cowards and to steel with valour
:lting spirits of women, then, countrymen,
eed we any spur but our own cause,
k us to redress? What other bond
ecret Romans, that have spoke the word,
ll not palter? and what other oath
onesty to honesty engaged,
is shall be, or we will fall for it?

(Shakespeare, *Julius Caesar.*)

(*b*) Gay hope is theirs by fancy fed,
Less pleasing when possest;
The tear forgot as soon as shed,
The sunshine of the breast:
Their buxom health of rosy hue,
Wild wit, invention ever-new,
And lively cheer of vigour born;
The thoughtless day, the easy night,
The spirits pure, the slumbers light,
That fly th' approach of morn.

* * * * * * *

Alas! regardless of their doom
The little victims play;
No sense have they of ills to come,
Nor care beyond to-day:
Yet see, how all around 'em wait
The ministers of human fate
And black Misfortune's baleful train!
Ah, show them where in ambush stand,
To seize their prey, the murderous band!
Ah, tell them they are men!

(Gray, *Eton Ode.*)

THE STUDY OF THE LIVING PLANT.[1]

Simple Experiments for "Preliminary Certificate" Students.

By E. Stenhouse, B.Sc. (Lond.),
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III.

The Flower of Plants of the Bean Order.—Examine flowers of the bean or of the sweet pea, vetch, lupin, bird's-foot trefoil (Fig. 1), laburnum, gorse, &c., and notice the "butterfly"-shape formed by the coloured leaves (*petals*) in this order of plants. Observe the arrangement of the petals to form (*a*) the large, upper *standard*, (*b*) the two *wings* at the sides, and (*c*) the boat-like *keel* of two united petals. The five petals together constitute the *corolla*. Outside the petals, and covering their bases, observe the green cup-shaped *calyx* of five united *sepals*. Are the sepals placed opposite the petals, or in the intervals between the petals? Take off the petals, one at a time, noticing carefully the peculiar joint at the base of each wing. The ten stamens are now visible. Each is composed of a fine stalk (*filament*), carrying a two-lobed knob (*anther*), the latter being, in a fully-opened flower, covered with minute grains (*pollen grains*) readily adhering to any object touching it. In the laburnum, gorse, and a few others, the filaments of all ten stamens cohere to form a tube. In most plants of this order, one stamen—opposite the standard—is entirely free from the other nine, which are united. In these cases a chink is left in the tube of united filaments. Lay open the tube with a needle or knife-point. Observe the elongated body (*pistil*) thus wholly exposed, but before examining it look for a small drop of liquid (*nectar*) at the base of the filament tube. Taste the nectar. Examine the pistil. Make out the terminal knob

[1] The previous articles appeared in January and February, 1907.

[illegible] the pollen tube [illegible] the ovule [illegible] the ovule to the only part touched by the [illegible] tube. Upon the ovary and above the ovule [illegible] arranged about it [illegible]

[illegible] In order that an ovule may [illegible] the contents must mix with the [illegible] pollen grain. The fusion of the [illegible] fertilization. For fertilization to [illegible] the pollen grain must first of all [illegible] the stigma of the pistil. A sugary [illegible] the stigma stimulates the pollen grains [illegible] each put out a long tube which [illegible] style. The living matter of the [illegible] the tips of the tubes as these [illegible] slowly down the style. At length [illegible] the ovary and find the ovules [illegible] and a minute pore (the [illegible] pollen tube finds this and enters [illegible] the pollen tube fuses [illegible] the neighbourhood of [illegible]

conspicuous or inconspicuous (by reason of [illegible] or situation), strongly scented, faintly sc[illegible] scentless; and try to discover if there is [illegible] tion between conspicuousness and the pr[illegible] absence of scent.

Notice that in the bud stage the othe[illegible] the flower are covered and protected by [illegible] Write down a list of the duties (func[illegible] calyx, corolla, stamens, and pistil.

Notice that insects rarely visit flowe[illegible] are neither conspicuous nor scented [illegible] flowers e.g., those of grasses (Fig. 2[illegible] most of our forest trees (Fig. 4)—are [illegible] pollinated by the wind. Examine as man[illegible] of this character as possible, and notice [illegible] abundance of pollen is produced, and [illegible] stigmas are branched, spreading, or fea[illegible] order to catch the wind-borne pollen gra[illegible] readily.

Cover with muslin, stretched on wire [illegible] unopened flowers of species regularly p[illegible] by insects, so as to exclude these animal[illegible]

BUTION OF SEEDS.—Leave fruits (pods) pea (Fig. 3), lupin, laburnum, bird's-foot ., on the plants until they open of them- d describe any means by which the scat- the seeds is effected in any of these The method adopted by the bird's-foot especially worthy of study.

he part played by the wind in scattering umed fruits and seeds of dandelion, illow, willow-herb, &c.; (*b*) the winged d seeds of sycamore, elm (Fig. 4), ash,

e how such hooked fruits as those of et, wood avens (Fig. 5), goosegrass , and various "burrs" stick to the and hence deduce the unconscious f sheep and other grazing animals in dis- he seeds of such plants.

a list of brightly coloured fruits (*e.g.*, nd notice that in practically all cases part uit is juicy, and is relished as food by

lm: leaves, flowers, and fruit. g branch (× ½); 2, branch with a flower (× 2); 4, the same, gh longitudinally; 5, a fruit

FIG. 5.—*A*, head of fruits of wood avens (× 1); *B* and *C*, single fruits (magnified).

other animals. Examine the seeds of ts, and describe any peculiarities which her prevent them from being eaten with pulp, or would, in the event of their en, prevent them from being harmed by l's digestive juices.

a list of the advantages which the next n of plants owes to the distribution of formed by the last generation.

AND DECAY.—Leave in the ground some n annual plant (*e.g.*, sunflower) after , and observe the various stages of its l almost entire disappearance during the In damp, close weather, carefully ex- ch dead plants for signs of moulds.

hree ripe apples. Remove a small piece in from one; do the same with a second, on the wound a pinch of dust from a ow the third to remain intact; then lay le for several weeks. Examine them at and notice the order in which they

MOULDS AND OTHER FUNGI.—On which of the three apples do moulds first begin to grow? How did the moulds gain access to the apples? Is the decay of the apples hastened, or is it retarded, by the presence of moulds? In what places have you seen moulds, mushrooms, toadstools, or other fungi growing? Have you ever seen fungi growing in a place where there was no decaying organic matter? Have you ever seen moulds or other fungi growing on decaying animal matter?

Do fungi show any preference for well-lighted situations, or do they seem indifferent to light? Notice that fungi differ from higher plants in not possessing green colouring matter (chlorophyll). Recall the use of chlorophyll to green plants. Try to explain why fungi cannot grow except where they can obtain a supply of organic food. What useful part is evidently played by fungi? What would be one result of the sudden extinction of all fungi?

Make observations on the work done by insects in clearing away decaying organic matter, and compile a list of those you have seen engaged in such work.

FIG. 6.—Holly. The red colour of the fruit contrasts strongly with the dark green of the leaves.

THE STRUGGLE FOR EXISTENCE.—It will be remembered that, for ordinary green plants, the primary conditions of obtaining food are soil-water, air, light, and the presence of chlorophyll. The food is for the most part built up in the leaves, which are green, are exposed to the light and air, and are supplied, through the stem, with soil-water taken in by the roots. The leaves not only manufacture the food, but they are also responsible for getting rid of *excess* moisture by transpiration, and for supplying the plant with a considerable amount of the oxygen it requires for breathing. From these considerations, it is to be expected that in the forms and arrangement of the leaves will be found the most striking of the modifications whereby plants compete with their neighbours for the necessities of life.

The intensity of this competition will be brought home to the mind of the student if he reflect that each year many of the commonest plants in our fields produce thousands of seeds, of which only one can, in general, survive to take the place of the parent.

GRASS-LIKE PLANTS.—Make a list—from personal observation in the field—of plants which bear long, narrow, and flexible leaves (Fig. 7), like those of grasses, or finely divided leaves which are

able to compete with grass leaves for the available sunlight and air. The list may be started with, *e.g.*, the buttercup, ox-eye daisy, &c.

Rosette-forming Plants.—Make a list of plants which "stake out a claim" with a rosette of leaves pressed closely to the ground, and so appropriate a certain area to their own exclusive use. Observe in such cases (*e.g.*, field daisy), the narrowness of the base of the leaf, preventing wasteful overlapping.

Economy of Leaf-Surface.—Notice, as another example of economy of leaf-surface, the manner in which ivy leaves, growing close together, arrange themselves so that a point on one leaf will, if possible, fit into an indentation of a neighbouring leaf, and so produce a "leaf mosaic." Look for other examples.

Creeping Plants.—Make a list of plants which are found to creep along the ground or below the surface, and send up leafy shoots at intervals. What advantages have such plants over those which do not travel horizontally?

Fig. 7.—Wild hyacinth (× $\frac{1}{6}$).

Climbing Plants.—Make a list of plants, themselves too weak to stand erect, which climb up stronger plants or other supports, in order to spread out their leaves to the light and air. A hedge affords the most instructive conditions for this observation. Notice in each case the method of climbing: *e.g.*, by hooks, tendrils, adhesive roots, or twining stems or leaf-stalks. In such plants observe the scarcity of leaves and the length of the internodes in the lower parts of the stem, where light and air are difficultly obtainable.

Trees and Shrubs.—Finally, observe that in the case of trees and shrubs, which have persistent woody stems and branches, the plants, once started, are able to outdistance their herbaceous rivals, and have to compete only with other trees and shrubs. Notice how oaks, growing close together in a wood or plantation, develop tall and straight trunks in their efforts to raise their leaves to the light and air; while solitary oaks (Fig. 8) have generally gnarled and irregular trunks and branches.

Plants Growing in Water.—Examine common water-plants. Notice that submerged leaves (*e.g.*, of water crowfoot) are often finely divided, in order to lessen the strain of friction of the water. Floating leaves, on the other hand (*e.g.*, water-lily), are entire. If possible, cut open the stem, and notice the almost entire absence of supporting and strengthening tissue, which the buoyancy of the water renders unnecessary. The b is increased by the development of abund spaces.

Plants in Dry Situations.—It is obvi plants the roots of which are unable to obta water are in danger of becoming too dr their leaves are modified to reduce the tr tion (loss of water) taking place through mata. Bearing in mind that the stom usually on the lower surface, examine suc land plants as ling, crowberry, cranberry leaved heath, &c., and try to discover peculiarities of their leaves tend to less spiration.

Plants Exposed to Cold.—During the and also in exposed situations, the roots o are often too much chilled to be able to water freely. The danger of continued tr tion by the leaves in such cases is obvious. devices to prevent this: *e.g.*, (*a*) the los leaves of most forest trees in winter; (*b*) th

Fig. 8.—A solitary oak.

ness, smallness, or reduction, by various of the free transpiration-surface. Write the peculiarities in this respect of the l rushes, furze, pines, rhododendrons, ho Why is it a mistake to water plants whe cold night may be expected?

Plants Exposed to Salt Water.—It understood (see Article II., February, 19 the presence of much salt in the soil will with absorption of soil-water by osmos amine plants on the seashore for woolly thick leaf-skins, succulent leaves, or othe for diminishing transpiration.

Storage of Food.—In winter exam "bulbs" (better called *corms*) of crocus, t of snowdrop, hyacinth (Fig. 7), &c., th of potato (Fig. 9) and Jerusalem artich tuberous roots of dahlia, conical roots o &c., the underground stem of Solomon's observe how these parts are swollen wit food. Cut them across, and test for sta iodine solution. Make a list of (*a*) tho

starch, and (*b*) those in which the stored ridently devoid of starch.

t of a potato plant, the old tuber (dark) al new ones (× ½)

How many of these plants flower very early in the spring? Try to explain the importance of stored food, (*a*) to early-flowering plants, (*b*) to *biennials* (plants which complete their life-history in two years), and (*c*) to such *perennials* (plants living for an indefinite number of years) as become dormant in the winter.

do *annuals* (plants whose life-history is d in one year) not need to store food?

THE METRIC SYSTEM.

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I.—Conversion and Calculation.

IUSIASTS for the metric system, if ked for a few hints on methods of teach- how to convert measures from the e British system, would feel inclined immortal jibe of Mr. Punch in his e about to marry: "Don't."

ters, however, not less than other tures of environment, and compelled y systems which they might happily h in a perfect state. We do not, in- st that there is any real resemblance tres and monasteries, or between miles ony, further than that the considera- e latter should be reserved for those of ture age than the average schoolboy.

e contrary, whilst the schoolmaster would the removal of the cruel disability under is noble profession labours with regard to ter which Mr. Punch satirises, the teachers matics and science would rejoice to see le British system of units banished from ol curriculum.

obnoxious measures—troy weight, apo- s' weight, and avoirdupois weight, yards s, poles and square poles, geographical nd nautical miles, gallons, pecks, and , not to mention coombs or carats, lines or , hogsheads, or other hideous terms—have om the laboratory, are going from the place, and must go from the schoolroom.

of course, is a counsel of perfection. We ot altogether leave out of consideration examiners, literature, trade, or even the onservatism of the man-in-the-street. We w how long the "guinea" has survived and, and how the "sou" still lingers in

We cannot by any government decree the average man from continuing to think s, acres, or feet; nor can we preclude from talking to their children about ounces, yards, and pints. So long as the home influence is on the side of the British units, so long must our strongest appeal to the young mind be found in these appalling measures.

Our only hope for the future of education, for the supremacy of our commerce, and for the ultimate release of our children from the thraldom of dreary tables, lies in teaching them to think with equal clearness both in the metric system and in the most popular of the British units.

That is the sole excuse which can be offered for the following remarks; because we cannot regard as a convincing argument the plea that these units provide a valuable intellectual exercise. No doubt they form a species of mental gymnastic; but if its value depends upon the inconvenience of the units, then the worse the system the more it should be perpetuated. On the other hand, if mere change from the simplicity of the metric system be demanded, this can easily be found. As the British measures are gradually dropped out of the course, we may introduce one by one the ever-increasingly important physical and chemical units, which will provide all the mental stimulus of the kind that can be desired.

We shall assume, therefore, that for the present, at least, some knowledge of the following units is essential, viz., the inch, foot, yard, and mile; the grain, ounce, pound, hundredweight, and ton; the pint, quart, and gallon; and, for land measurement, the acre and the chain.

The pupils can easily see that four inches and ten centimetres are nearly equal. Questions should be set in the following form:

"If 4 in. = 10 cm., how many centimetres are there in 15 inches? Also, how many inches are there in 17 centimetres?"

Do not let the pupils acquire a habit of saying: "Multiply by 2·5 to reduce inches to centimetres, and divide by 2·5 to reduce centimetres to inches." Make them write out their work thus:

4 in. = 10 cm.	10 cm. = 4 in.
∴ 1 in. = 2·5 cm.	∴ 1 cm. = 0·4 in.
∴ 15 in. = 2·5 cm. × 15	∴ 17 cm. = 0·4 in. × 17
= 37·5 cm.	= 6·8 in.

Follow these questions by others of the type: "If 4 in. = 10 cm., express 5 metres in feet, and reduce 0·35 in. to millimetres."

Next let them measure the number of centimetres in 10 inches. Then set questions similar to the preceding, and also such as this:

"If 10 in. = 25·4 cm., find the difference between 12 yards and 11 metres."

We have 1 in. = 2·54 cm.
∴ 1 yd. = 2·54 cm. × 36
∴ 12 yd. = 2·54 cm. × 36 × 12
= 1097·28 cm.
Also 11 m. = 1100·00 cm.
∴ reqd. diffce. = 2·72 cm. = 3 cm. approx.

We might now state that the legal equivalent of the metre as established in 1897 is 39·370113 inches. We could use this as follows:

"Is it more correct to say that 1 m. = 39·37 in., or that 1 in. = 2·54 cm.?"

If 2·54 cm. = 1 in.

then 1 cm. = 1 in. × $\frac{1}{2\cdot54}$

= 0·39370078 in. (nearly).

Thus 1 m. = 39·370078 in.

This shows an error = 0·000035 in.

The other shows an error = 0·000113 in.

Thus "1 in. = 2·54 cm." is the more accurate statement.

We might then suggest that probably in the future it will not often be necessary to convert metres into British units, but that we may have to perform the converse operation when referring to books printed in the older system. *Hence for practical purposes the statement* "1 in. = 2·54 cm." *is not only more accurate, but also more useful than* "1 m. = 39·37 in."

It should be pointed out that a clearer way of stating the equation is "1 in. = 2·54000 cm.," since, from the legal equivalent, we can calculate that "1 in. = 2·539998... cm."

It is noteworthy that the error in reducing British lengths to the metric system, or *vice versâ*, by means of the simple formula "1 in. = 2·54 cm." is less than *one per million*. (*Two* per million for *area*; *three* per million for *volume*.) Why do our text-books continue to worry us with obsolete numbers like 39·37079? And why could not the Board of Trade adopt the simple figures 2·54?

Using these figures, the class can find that 1 foot = 30·480 cm., 1 yard = 0·91440 m., and 1 mile = 1·6093 km.

Associated with the above work should be plenty of oral exercises in conversion by means of the formulæ "4 in. = 10 cm." and "12 yd. = 11 m." For the latter statement we may substitute, "The difference between the measures of a length in yards and in metres is about a tenth of the whole." This, of course, is rough, and would convert 1609 m. into 1770 yd. (instead of 1 mile). But it has a decided advantage for the purpose of such questions as "How many metres are there in 100 yards? How many yards in a kilometre?", and, after all, the error is little more than ½ per cent.

The pupils can now find that there are about 8046 m. in five miles, and thus obtain "5 ml. = 8 km.," which will provide additional oral exercises. It should be noted that this formula is of the same order of roughness as the previous statement, since both methods would convert 1 km. into 1,100 yd.

In dealing with area and volume pupils should be discouraged from quoting "144 sq. in. = 1 sq. ft.," "27 cu. ft. = 1 cu. yd.," or "10,000 sq. cm. = 1 sq. m.,"—a form which disguises the underlying principles. "12^2 in.^{2} = 1 ft.^{2}," "3^3 ft.^{3} = 1 yd.^{3}," and "100^2 cm.^{2} = 1 m.^{2}," or even "12^2 sq. in. = 1 sq. ft.," &c., are much better.

In a question of the following type it is painful to see such work as this:

"If 1 m. = 39·37 in., how many cubic feet are there in *a cubic* metre?"

Since 1 m. = 39·37 in.

(Here follows an elaborate process of cubing which, probably, either too many figures are re too many rejected.)

∴ 1 cu. m. = 61,024 cu. in.

(Here follows a piece of long division by perhaps three successive divisions by 12 with redu insufficient figures.)

∴ 1 cu. m. = 35·31... cu. ft.

Such work usually bristles with erro many cases a slight error in cubing ren that follows useless. Some fail in the d one of the commonest mistakes is to wri for 1,728; whilst others quote 27 or 144 number of cubic inches in a cubic foot.

On the contrary, if they were accusto say "12^3 in.^{3} = 1 ft.^{3}," it would hardly be for them to make such an anomalous state "12^2 in.^{2} = 1 ft.^{2}"; and the above work probably be arranged as follows:

$$1 \text{ m.}^3 = (39\cdot37)^3 \text{ in.}^3 = \left(\frac{39\cdot37}{12}\right)^3 \text{ ft.}^3$$

$$= (3\cdot2808\ldots)^3 \text{ ft.}^3 = 35\cdot31\ldots \text{ ft.}^3$$

In this case the only "side work" wo sist in finding the cube of 3·2808. Thus only one division by 12; the cubing is le end; and the chances of error are redu minimum. Besides, this method has th tage of showing how many figures sh retained at each step in order to secure degree of accuracy.

The above is only given for the purpose tration. Better results, both for square cubic measure, are obtained by using th 2·54.

It may be convenient at this point to land measurement. We have 1 cha 0·9144 m. = 20·117 m.; whence 1 square 404·70 m.^{2}, or 1 acre = 40·470 ares, and mile = 2·5900 km.^{2}

The above will furnish some more o cises by reckoning 20 metres to the c ares to the acre, and 2½ square kilometr square mile. The first of these approx is correct to within nearly ½ per cent. f measurement; and for area measuremen curacy is the same as that of the second correct to within nearly 1 per cent. The the third is about 3½ per cent.

In dealing with measures of weight t certain peculiar difficulties which are acc when we arrive at measures of capacity.

There are two or three different mea tached to each of the words *kilogra pound*, and *gallon*. Thus we have th standard (*e.g.*, Borda's kilogram), t standard (*e.g.*, the kilogram expressed weight of a litre of water), and the standard (*e.g.*, the kilogram defined as of a cubic decimetre of water). The sideration of these must be left to the ex we certainly should not confuse our pup by referring to such difficulties, especia we are trying to impress upon them th tages of the metric system!

'o conclusions are obvious. First, we
: the sake of clearness, make up our
ls as to which of these various standards
adopt. Secondly, we must not attempt
of approximation so high as to render
is determinations inconsistent.

ı the case of the metric system, it seems
we ought to adopt the *scientific stand-*
e shall, therefore, assume that the gram
ss of a cubic centimetre of water under
nditions, and that the litre is exactly one
metre.

the case of the British system, the ad-
of the scientific standards are not ob-
lot only is the scientific comparison of
h with the metric units too difficult for
ourse, but also the results will be found
ecause our legalised scientific definitions
sistent.

ould, therefore, recommend teachers to
ıe official "standard pound" as the
nit of mass, so that the relation between
the scientific kilogram can only be deter-
actual weighing; and to *assume* that
ised metric equivalent applies to these

night be instructive to *indicate* a method
ison by setting the following problem:

ine the number of pounds in a kilogram,
hat a cubic foot of water weighs 1,000 oz."

kilogram is the weight of water contained in

$$\left(\frac{10}{2{\cdot}54\times 12}\right)^3 \text{ft.}^3 = 0{\cdot}035314\ldots \text{ ft.}^3$$

gram = 35·314... oz. = 2·2071... lb.

uld then state that a cubic foot of water
ather less than 1,000 oz.; and it might
he boys to know that the legal equiva-
he kilogram as determined in 1897 is
4 grains! We could use this as fol-

ng that 1 kilog. = 15432·4 grains, is it more
say that 1 kilog. = 2·205 lb., or that 1 grain =
ams?"

1 kilog. = 2·205 lb. = 15435·0 grains,
it the error is 2·6 grains.
·48 centig. = 1 grain,

$$\text{centig.} = 1 \text{ grain} \times \frac{1}{6{\cdot}48} = 0{\cdot}154321\ldots \text{ grains},$$

kilog. = 15432·1... grains.
ıe error is 0·3... grain.
grain = 6·48 centigrams" is the more accurate

from the legal equivalent we obtain 1
47989 centigrams. Hence a clearer way
; the previous statement is "1 grain =
ntigrams"; the approximate error being
001 centigram.

ıoteworthy that the error in reducing
eights to the metric system, or *vice*
means of the simple formula "1
48 centig." is less than *two per million.*
se figures the class can find that 1 lb.
) kilog.; whence 1 cwt. = 50·802 kilog.,
0160 tonnes (or milliers), and 1 oz. av.
= 28·350 grams. Good results, correct to within $\frac{1}{3}$ or $\frac{1}{4}$ per cent., can be obtained by taking 1 grain = 6½ centig., and 11 lb. = 5 kilog. For oral purposes we might use 3 grains = 2 decigrams, 2 cwt. = 100 kilog. = 1 quintal, and 1 ton = 1 tonne, each correct to within less than 2 per cent.; and possibly also 1 oz. av. = 30 grams, in which the error is about 6 per cent.

The special difficulty in dealing with measures of capacity is chiefly due to the ambiguous meaning of the word *gallon.*

We might set the following question:

"Assuming that 1 gallon contains 277·274 cubic inches, how many litres are there in a gallon?"

Here 1 gallon = $277{\cdot}274 \times (2{\cdot}54)^3$ cm.^{3}
= 4543·7 cm.^{3} = 4·5437 litres.

Or we might set the following:

"Assuming that 1 gallon contains 10 lb. of water when a cubic decimetre contains a gram of water, and also assuming that 1 lb. = 0·45359 kilog., find how many litres there are in a gallon."

Here we obtain 1 gallon = 4·5359 litres.

The discrepancy, due chiefly to the neglect of temperature, is sufficiently obvious.

The simplicity of the latter method will appeal to some; others will prefer the greater accuracy of the former method. But should we use either —except as an example? Why not have resort, as in the case of the kilogram, to authoritative experiment?

The reply is that the authorities differ from one another nearly as much as do the above results. Further, in one of the carefully compiled tables, referred to later, we find the following statements: 1 gallon equals 4·5466... cubic decimetres, 1 gallon equals 4·5459... litres, and 1 gallon of water weighs 4·5359... kilograms. The latter measurements refer to the *commercial* litre and kilogram; but we decided that the *scientific* units should be adopted.

It is true that there is the official metric equivalent ordered in 1897, viz., 1 gallon = 4·5459631 litres. But in the vast majority of questions we should have no guarantee that the gallon used was the official gallon, nor should we know whether the litre meant a cubic decimetre or not! Clearly such measures must be regarded as indeterminate quantities, and be avoided in all accurate investigations.

The gallon, therefore, should be left to the individual teacher to introduce in whatever manner he pleases, provided always that it should be used only in oral work or in rough calculations.

If we take 1 gallon = 4·536 litres, we obtain 1 quart = 1·134 litres and 1 pint = 0·567 litre. These results are probably correct for any of the various British "gallons" to within about ¼ per cent. (They are quite untrue for the American and the Canadian gallons.)

But it will be safer if we confine ourselves to oral examples, reducing both gallons and pints to quarts in every case. We should then use the equation 7 quarts = 8 litres (error about 1 per

cent.), or even assume the practical identity of the quart with the litre.

The only part of arithmetic interesting to the average boy is that which is probably most repugnant to his masters and unenlivening to his parents, viz., bills and accounts. Here he feels that he is dealing with something real and useful, a subject that places him upon a mental level with some of his respected seniors.

Hence it may be found that the conversion of bills from the British to the decimal system will prove not only instructive, but even entertaining to the class. Such a question as the following, involving many different kinds of units, might be set.

"Make out, in the decimal system, a bill for the following items: 3 tons of coal at 23*s.* 9*d.*; 4 cwt. of coke at 1*s.* 1½*d.*; 14 gallons of oil at 5½*d.*; ½ pint of spirit at 2*s.* 6*d.*; 2¾ yd. of cloth at 1*s.* 11*d.*; 18 inches of brass tubing at 3½*d.*; 20 lb. of sugar at 2½*d.*; 3 oz. of ointment at 1*s.* 9*d.*; and 120 grains of quinine at ¼*d.*"

Each boy should use his own rough approximations, expressing the quantities as simple multiples or submultiples of the most convenient metric unit, and calculating the price to the nearest "mil." For example:

3 tonnes of coal at £1·187	£3·561
2 quintals of coke at £0·113	£0·226
32 litres of oil at £0·010	£0·320
. . . . .	.

The total can afterwards be compared with the original as a test of accuracy.

Pairs of questions of the following type will help to prove the superiority of the decimal system.

"Find the cost of painting the walls, inlaying the floor, and gilding the cornice around a room of the following dimensions:

(1) 6 yd. 5 in. long, 5 yd. 1 ft. 2 in. broad, and 3 yd. 2 ft. 8 in. high, at £1 7*s.* 6*d.* per sq. yd. for painting, 1*s.* 10*d.* per sq. ft. for inlaying, and 3 halfpence per inch for gilding.

(2) 6·05 m. long, 5·12 m. broad, and 3·28 m. high, at £1·76 per sq. m. for painting, £0·011 per sq. dm. for inlaying, and £0·003 per cm. for gilding."

It will be observed that the *same digits* occur in each of the above questions; yet in the former case a great deal of reduction is needed, whilst little is required in the latter, and that little is performed merely by moving the decimal point.

In putting such a course as is here suggested into practice, a few points should be emphasised. Special attention should be called to the fact that, for conversion from either system to the other, two formulæ, and two only, are absolutely essential; viz., 1 in. = 2·5400 cm., and 1 grain = 6·4800 cgm.

From these two equations each boy should construct and enter permanently in a note-book a table expressing the inch, foot, yard, mile; square inch, square foot, square yard, acre; cubic inch, cubic foot, cubic yard; grain, ounce, pound, hundredweight, and ton, in the decimal system to *five-figure accuracy.*

No attempt should be made to commi table to memory (with the exceptions, per the two remarkable formulæ last me The table should be used only for exact tion to four- or five-figure accuracy.

For general purposes a few approximat might be learnt by heart. Of these, perh chief are: 12 yards = 11 metres, 5 miles metres, 1 acre = 4 dekares, 11 lb. = 5 kilog = 1 quintal, and 7 quarts = 8 litres.

Boys with good memories could add the ing: 6 sq. yd. = 5 sq. m. (5 centiares), ar yd. = 3 cu. m. (3 steres); the former of correct to within ½ per cent., and the l within about 2 per cent.

Care, however, must be taken that th neither confuse these rough results nor them as strictly correct; and in the case with weak memories, it may be advisable fine their attention to the approximate of the yard with the metre, the ton with th and the quart with the litre.

The teacher will desire to know where obtain manuals and models specially desi aid in the comparison of the metric v British system. A wonderful pennywort formation in the shape of a complete set ((up to date, being based upon the Order in for 1897) can be found in "Metric and Weights and Measures," published by Radley and Co. (30, Theobald's Road, W.(also publish a handy card containing t cipal equivalents. Many hints useful to are given in the "Elementary Physics an istry" and other science manuals wri Messrs. Gregory and Simmons (Mac Messrs. Philip and Son (32, Fleet Street) two handbooks. The first is called "A C Manual of the Metric System" (price 3*d.* answers to the examples can be obtained This manual is intended to accompa "Diagrams and Synoptical Tables of the System, with the English Equivalents 7*s.* 6*d.*). The second is called "Brit Metric Weights and Measures" (price 3*d* accompanies "Philip's Comparative Cal British and Metric Weights and Measures £1 10*s.*). The title explains itself, and for practical illustration is evident.

In conclusion, the reader is asked to this in connection with the previous articl same subject; and to remember that mo three hundred millions of persons in twe ferent countries use only the metric syste

Tommy Smith's Other Animals. By Edmun vii+214 pp. (Methuen.) 2*s.* 6*d.*—This sequel to Smith's Animals" will probably become as p its predecessor. It is by no means a new idea information on natural history by the m imaginary conversations between a child and h friends, but it is rare to find the idea carried accomplished naturalist with the raciness and Mr. Selous here displays. The spirited illustr Miss Augusta Guest add to the attractiveness of t

DIÆVAL ENGLISH HISTORY.[1]

fifteenth century is a dreary, unin-eresting period in English history, and ven in much of European history too. In e the ideals of State and Church were g down. The Church had become stereo-id was nothing much more for the people privileged caste whose interests, financial litical, diverged more and more from f the laity, especially of the northern The nobility had become wealthy and ly all-powerful, and kingship could not do r the protection of the poor against the Civil war, open or concealed, was chronic ountries. With the approach of the six-century, and during the first half of its a change was apparent, at least in the states of Europe, in England, France, Iberian peninsula. Out of the wrecks of m that had become self-destructive arose monarchies, and in this country the had, before the middle of the century, not only the Church and the nobility, made Parliaments, when not unnecessary er, all but entirely subservient to the ill.

ese two volumes (volumes iv. and v., the nd seventh to be published, of "The History of England in Twelve s") the story is told first of the and then of its cure. Mr. Oman has re thankless and perhaps the more diffi-k. This is partly because of the endless f the constant personal rivalries wherein ciples are involved and partly because, as (p. 497), "the original authorities grow nd scantier as the years go by. . . . The es gradually sink from history into annals, and finally dry up altogether . . . icial documents are scarcely accessible, the Record Office publications do not he fifteenth century save in one or two ." No wonder the story is uninteresting. not yet know the whole truth. Mr. has an easier task. There is a wealth of e, contemporary and modern, which it possible to write the history of the period with something approaching to What difficulty he has arises largely e conflicting views of Roman Catholic and nt writers, a conflict which tends to as the documents are discovered, pub-and studied.

Oman tells his story clearly and fully in ogical order. Indeed, he thinks of his as "annals." More than that, in the state of our knowledge, they cannot be. ere are exceptions. The revolt of 1381 en studied of late years in local docu-and it is possible now to know something f that peasants' revolt than that "Wat Tyler" began it at Dartford and that Richard II. ended it at Smithfield. The "Wat Tyler" of our old text-books, indeed, quite disappears, and instead we read of various leaders and much detail previously unknown. Mr. Oman thinks that Wycliffe's doctrines were not a cause of the rising, but he maintains the old theory that the revolt did not put an end to villenage. *That* was a result of slow-moving changes. The reign of Richard II. is becoming clearer, and the causes of his sudden fall are becoming comprehensible. He "fooled away the crown by arrogant tyranny," the arrogance being greater than the tyranny. As compared with Shakespeare, who has been for most of us the authority for these years, the Lancaster of Richard II.'s reign is not the noble patriot, but an incompetent and selfish intriguer, with desires more in Spain than in England.

On the other hand, Owen Glendower comes out of the mists of magic into a serious and interesting historical character, playing a large part not only in Welsh but in English history. Henry V.'s character sinks somewhat. His wild doings in London seem to be probably true as well as his conversion on his accession. But that conversion was to a narrow-minded bigotry. "Staid, cautious, deliberate, with an iron will and rigid ideas of orthodox piety," a "model king, courteous, laborious, self-contained, deliberate, but certainly not genial or spontaneous." "His piety made him a persecutor." "He commands our intellectual and moral respect, but no one can call him a sympathetic or a loveworthy character" (p. 232). Of poor Henry VI. we have a sympathetic and pitying sketch, with which our readers will probably agree as much as they will protest against Mr. Oman's opinion that such a person "ought to have been a monk or a *schoolmaster*" (p. 336). His weakness was one of many causes which led to the downfall of the House of Lancaster and to the wild orgy of personal ambitions which make up the short annals of the Yorkist House and the "crimes" of Richard, Duke of Gloucester.

With the new dynasty we begin to get into more hopeful days. We do not agree with Mr. Fisher (p. 20) that Henry VII. *created* the Star Chamber (the volume to which he refers as his authority for this statement gives us a different impression); but that famous court came into more active life under the Tudors than before and served to break the power of what nobility were left. We are glad that Mr. Fisher gives us a chapter on the Renaissance, and thus transgresses the nominal limits of his title. We learn from him the non-existence of Morton's fork and the true story of Warwick's end. We learn also that the ecclesiastical landlords were often as business-like and hard as any of the new men who succeeded them in the abbey lands. But the main subject, of course, of this volume is the reign of the mighty lord who broke the bonds of Rome. Wolsey's character somewhat falls as compared with recent bio-

[1] History of England, 1377-1485." By C. Oman. xvi+525 pp. ory of England, 1485-1547." By H. A. L. Fisher. xx+518 pp.) 7s. 6d. net each.

graphies of him. Mr. Fisher thinks that Dr. Creighton's sketch was "too eulogistic." The story of the Reformation Parliament and of the subsequent changes in the worship and doctrine of the English Church is told in full detail, and some light is thrown on the methods by which Henry VIII. got his way with Parliaments. Partly by force of character, partly by careful packing, partly because for a long while his was the only life between England and a renewal of civil war, partly, too, because there was a large body of Protestant belief, especially in the south-east, and certainly much "Lollard" dislike of clerical wealth and privilege, Henry worked out the great change which differentiates all modern from all mediæval English history. Space forbids us to dwell further on the contents of these volumes. We will only add that they are each supplied with maps, plans, genealogical tables, and, above all, with very full bibliographies. Not only are the authorities named, but they are described so as to guide the student to what is best and to warn him against the bias of those that are not so good.

THREE ASPECTS OF EDUCATION.[1]

HERE are three books devoted respectively to the physical, moral, and intellectual sides of education. Interesting as they all are, it cannot be said that the first two teach us anything that has not been hammered into the educational reviewer for ten years and more. Dr. Sargent, who writes with knowledge and enthusiasm, and who has actually done the things he talks about, believes in physical training *for all*. So do we: but, alas, we only believe. Our faith is not followed by works. He deplores professionalism, gladiatorial conflicts, and all that helps nature to make man a beast again. So do we: but those who know best say we are only moderately successful in our efforts to make games humanising; in America they do not seem to be successful at all. We all know the ideal; but in this, as in every other department of education, our camps are as numerous as our schools. The book is fresh, buoyant, American; and, unlike Dr. Harper's "Education and Social Life," it is hopeful.

But Dr. Harper's volume is not hopeful; it is sad. Again and again the submerged tenth troubles him, and education codes, inspectors, and departments weigh heavy on him. Christianity, too, he says, is so inert, so complacent: why are not men better? Surely the answer is found in his own volume. All theory about education is, as he himself shows, in a chaotic state. How can it be otherwise when Ruskin and Herbert Spencer and the Moral Instruction League exist side by side, preaching gospels so different that even to read them induces confusion? T no use mincing the matter. We do not because we do not know what we want. are so many aims in education that we make up our mind to take one. Again—a seems a defect with all such books—grant we admit the importance of psychology psychology is there to lay before teacher or ist? Our author builds all up from this: consists of a body and a soul." Is it pos do more to-day than to say, "Man consis body, which, in some way not understood, and wills"? Psychology has itself to tha the impatience with which practical teach gard it.

The book is a plea for common sense i ters physical, and for the training of teac psychology and economics. Everything, e very uncertain teachings of history, has t serve the moral and religious end; ar though, as our author admits, many write morals as merely an expedient of civilisati many good educationists (the Japanese, stance) would deny his dogmatic statement Bible is the history of redemption and of th of God." The whole book is thoroughly i ing; but its main positions have been mai —and denied—many times before.

The altogether delightful volume on t naissance takes us away from contemporar in morals and religion, and transports us society of the dead who did good work i generation. There are chapters on the hu reaction, on Rudolph Agricola (so import yet so silent in his lifetime), on the ever i ing Erasmus, on Corderius, whose book used up to a few years ago, on Ludovicu and Sir Thomas Elyot—and every mar Perhaps the chapter on Agricola is writt more sympathy than some of the others; book teems with learning worn gracefully in reading such books as this that the fut our modern quarrels on education comes h us. We are apt to forget, though, that days of Erasmus and Melanchthon discussi just as busy.

[1] "Physical Training." By Dr. D. A. Sargent. 310 pp. (Ginn.) 6s.
"Education and Social Life." By Dr. T. Wilson Harper. 315 pp. (Pitman.) 4s. 6d.
"Education during the Renaissance." By Prof. W. H. Woodward. 336 pp. (Cambridge University Press.) 4s. 6d.

THE DIRECT METHOD OF TEAC MODERN LANGUAGES,

WITH SPECIAL REFERENCE TO THE TEACHING OF AND THE USE OF TRANSLATION.[1]

By L. VON GLEHN, M.A.
Perse School, Cambridge.

OUR object in teaching a foreign language to at school is not to use the teaching of it as a ve teaching English, or grammar, or morality, or else, but simply *to put our pupils in possessio language*; secondly, we must introduce them to th people, their life and ways, and consequently to s of their history; thirdly, we must initiate them t best in their literature, and thus, by wideni sympathies and deepening their insight into huma

[1] Abridged from a paper read at the London County Council of Teachers, January, 1907.

rivilege and duty to contribute to a saner and
osophy of life.

mean by "possession of the language" is:
our pupils shall be able to understand it when
l speak it so as to be understood.
they shall be able to understand it when read,
so as to be understood.
they shall be able to write it idiomatically and
nd, as a crowning accomplishment only, that
e able to translate good English into the nearest
iivalent the foreign language affords.

he reverse of the order of advance under the
atical method, under which *translation* (both
om the foreign language) with endless writing
one of grammar about their necks—ranked first.
me next, if there was time and the teacher
and *speaking*, if it came in at all, came in as
accomplishment only. I also take it we are
grammar should be taught, so far as possible,
and be "no longer mistress, but handmaid,"
e mother tongue should be kept in the back-

n we come to the application of these prin-
"doctors disagree."

sense is the all-important intuitive guide in
tion of principles. Still, it is extraordinary
it one man's common sense is from another's,
nconsistencies are committed by one and the
in the name of that arbiter. We must
rouble to analyse the logical bases of our
that our teaching may be a harmonious co-
f forces working towards the same end. If I
her tell a boy who stops short while reciting
poetry, "Think of the English," I feel sure
nething wrong in his conception of the Direct
if a boy, when asked to say in French what
who is going out of the room is doing, says,
', I don't know the French for 'out,'" I know
t his attitude towards the foreign language is

her hand, those "New Methodists" who think
an leave grammar to take care of itself, that
ually soak in, certainly live in a fool's paradise,
who completely eschew translation deprive them-
valuable test. But it is a mistake to think
er is useful as an integral part of one system
will necessarily also be good in another.
lysis of underlying principles is the only guide
stions of comparison and selection.

for a moment the principle that the spoken
ust take precedence. What truth does that rest
? Why, that the essential condition of acquir-
guage is to acquire that sense for it, that
l, which in every language is far more
han grammar as a determining factor in its
l as an arbiter in questions of taste. The
iters in any language are those who have had
, the most unerring *Sprachgefühl* for it. The
which it grows is the spoken tongue, the
ssession of the whole nation; its mysterious
ten baffles analysis, but its presence is felt; it
s the really national writer from the mere
an of letters; and perhaps the best definition of
the intuition of the fundamental sense-experi-
lie at the root of all linguistic expression. I
s Gouin who defined the acquisition of a foreign
is the *translation of experience into that*
There you have the whole theory of the Direct Method in a nutshell; its object is the building up of an entirely new *Sprachgefühl* by repeating in the pupil, so far as possible, the process by which is built up in him his *Sprachgefühl* for his mother tongue.

And just consider what results from this. It compels us to adopt as the determining factor in tracing our course, not linguistic *form*, but linguistic *content*. The pupil must act, suffer, perceive, so to speak, in the foreign language; that is to say, he must be made to repeat the foreign expressions for what he does, suffers, perceives, until each calls up the other. A child's first steps in a foreign language, therefore, must be within the range of his most familiar experience.

Meanwhile, it is for the teacher so to select and systematise these "translations of experience" that the pupil learns at the same time the most common facts of grammar and the most useful vocabulary provided by each sphere or category of "experience." Thus, though the content, as I said above, will be the determining factor, this content will be arranged in accordance with considerations of grammar and vocabulary. It was Gouin again who discovered the remarkable value of "normal series of actions," in these first stammerings of the "infant foreigner," as the pupil might be called, since, according to the theory, he is building up in himself a kind of foreign second nature. Their great value lies in the help given to the sense-memory, in establishing the new set of associations, by the fact that the actions occur in a necessary order, viz., the chronological order. I need not go into further particulars on these "Gouin Series," as they are no doubt familiar to you. But you have only to think for a moment to see that practically the whole of a child's experience may be presented in such series, supplemented by object lessons, the two together covering two important fields of speech, narrative and descriptive.

You will also readily see that it needs little ingenuity so to systematise these series that the pupil learns, while, as he thinks, merely performing or seeing performed a series of actions, the chief forms of the verb—that "soul" of the sentence, as Gouin calls it. He thus learns his grammar "in the concrete," so to speak; and only those who have tried this device know how trustworthy are the new associations thus formed. Of course, as soon as a sufficient number of similar forms have been assimilated, the pupils are made to classify them and induce the main rules of conjugation and concord, to be used thenceforth as tests of grammatical accuracy to be applied to the foreign expression which the sense-experience calls up.

Observe that this is already essentially "reproduction," that chief means of assimilation under the Direct Method, viz., the reproduction of the foreign expression associated with the sense-experience. There is no intervention of the mother tongue. Even if the first time the pupil says "*Je me lève*," while getting up from his seat, he says to himself "that means *I stand up*," before he has repeated it many times the English equivalent will have vanished, simply because it is not needed; and thus we lay the foundations, in the cultivation of sense-memory, of the habit of Visualisation—the essential condition of the reproduction, at a later stage of study, of a narrative read or heard.

The process is as follows: as, in the case of *Je me lève* (what we may call the dramatic stage), the will renews the *sense-experience* which calls up the foreign expression associated with it, so in the later narrative stage the will revives the *visualisation* of the story, which in its turn evokes its foreign expression. The foreign sentences

spring, so to speak, fully equipped from the brain, but are tested as regards their grammatical form, if possible before they are uttered. Observe, too, that even in the elementary or dramatic stage it is possible to practise what is really *Free Composition*. For what else is it but *Free Composition* when a pupil is allowed to combine actions into a new series of his own invention, or by a rearrangement of familiar objects to compose a new object-lesson?

And now compare with what I have been describing the underlying principles of the old grammatical method.

The first thing put into the pupil's brain was an abstract grammatical scaffolding; abstract logical processes (all in English, of course) presided over the translation, both from and into the foreign languages, the consequence being that the sense was often neglected, if not completely sacrificed, though so far as "Mistress Grammar" was concerned, *l'honneur était sauf*. Indeed, when translating into the foreign language, the final foreign product, put together bit by bit, like a mosaic, was barely tested as a piece of original French, or German, as the case might be; the whole task, the whole interest, if any, lay in reaching the point where the living foreign expression began.

We have two pitfalls to avoid: on the one hand, the neglect of grammar-teaching of a few and the neglect of grammar-drill of many reform teachers; on the other, the isolated, formal grammar-teaching of the old *régime*.

The new ideal bids us teach grammar, so far as possible, in a concrete form, not merely for the purpose of "inducing" the laws of accidence and syntax, but, above all—and this is the novelty—for the purpose of teaching the particular forms in detail before such induction, and for purposes of drill after the induction.

It is evident that the habit of *direct association* must tend to make the application of the above laws instinctive from the beginning, for the direct association enables the child to dispense with most of the analysis necessary, in the grammatical and translation method, to construct correct expression.

It makes all the difference whether a child, when he and his fellows are opening their books, says to himself spontaneously: "*Nous ouvr-*," and then reflects: "After *nous* we have *-ons*, which makes *Nous ouvr-ons*"; or reasons thus: "We open our books—'we' is first person plural; verb, *ouvrir*—first plural present, *nous ouvrons*." It is not at all the same thing whether, when he has to put a story into the past as told by one of its actors, he visualises the whole thing as done by himself the day, week, or year before, thus evoking a series of "*J'ai*," "*je suis*," or "*je me suis*" in answer to the successive questions: "*Qu'ai-je fait ensuite?*" or goes through this process in English, and then reasons: "These verbs must be put into the past indefinite, because it is spoken narrative—*i.e.*, I must use the auxiliary *avoir* or *être* with the past participle."

Accordingly, in the elementary stage we must use, as our instrument for teaching and driving home the main facts of grammar, what makes the deepest impression on the sense-memory, viz., the process of describing actual objects or pictures of objects, and that of expressing actions actually performed, seen, foreseen, or remembered.

Later, when the habit of *visualisation* has taken the place of the actual *sense-experience*, as the "compeller" of direct association, and object-lessons and action series have given place to graduated short stories, as the centre of study, these will, of course, at the same time form the vehicle for inculcating further essential points of grammar, which will thus, until they become part of the learner's *common and*, so to speak, automatic stock of grammatical knowledge, be associated with a definite cont secured by direct association.

The indispensable exercises for the practice grammatical points, as I have hinted above, mus on familiar material, so as never to lose the the direct association and the element of reality, be presented in the most concrete form possi example, to give practice in the rules of concord, will be told to rewrite a story, quite within l as if there were two actors instead of one, or person were a woman instead of a man, or person himself or herself told the story, &c., n necessary changes. Such exercises present then the pupil, not as a mere formal exercise in gran as a modification of the mental representation text calls up, a modification which demands linguistic form. They have the invaluable adv combining the exercise of common sense with th tion of grammatical tests, and thus form the lo so to speak, in the ladder of original or free co regarded from the grammatical point of view—ju modifications invented by a pupil in a series or lesson, which I spoke of above, are the lowest ru same ladder, regarded from the point of view of

In such exercises the pupil begins to feel power; he is in some small measure creat there is nothing like that feeling as an inc persevering effort. Even conjugation drill may much more real by insisting on having verbs in an actual complete sentence, however short: *e.* jugate *naître bon, lui en vouloir, en savoir quelq* &c.

In so far as a teacher uses, to give practice matical rules, that form of "reproduction" "retranslation," he approximates to the Direct for he uses as his practice ground a definite content, already assimilated, thereby bringing into the foreground, and inducing that wedding to grammar which constitutes correct expres here we touch that other shoal, so fatal to mar teachers—the question of translation.

I need not here repeat the ample and sufficie adduced by Director Max Walter and others to the old-fashioned construing is entirely detriment acquisition of the foreign language, and even of able service to the mother tongue.

The aim of the Direct Method is to move fo and through the foreign language, so far as it is without constant comparison with the mother ton comparison interfering with the all-important p direct association. It is obvious that there mu haziness as to the actual meaning, especially of the to be assimilated for reproduction. There are ma of explaining the meaning of words and sentence translating, many ways of testing the truth of th statement that he understands. And in this con should like to say that one of the great advantag Direct Method is that it compels the teacher to his pupils from the first the habit of distinguishing what they know and what they do not know; t be trained to put up their hands whenever the understand, and only the initiated know what a that implies. It means that it is no longer an plead, "Please, sir, I did not understand!" It tightening of the girths all round. It is a disc intellectual sincerity.

But the teacher has to be very watchful, an occasional rapid test, translation (oral or written)

ed. Moreover, it is absurd not to have recourse ake the meaning clear when the other means at osal are far-fetched or lengthy. In all this the judgment alone can decide, for the practice must every class.

re is one point which must be noticed in con- ith this question of translation. It is often said nations in the foreign language are no great stablishing the direct association, because, even y are successful, they generally lead to a , if not outspoken, utterance of the English word. no reason: they have had the benefit of the the explanation, and if it was simple and rward so that every step was clear, the passing glish word through the pupil's brain is not more to the direct association than it is when the of the foreign word is made clear by actually he thing mentioned or a picture of it. The point neither case has the English word been the evoking the mental representation; on the con- is the mental representation, evoked by the thing e in the one and the French definition in the ich has in its turn, as a matter of course, evoked ish word. The latter is not an intermediary, the direct association, but a ratifier, if need be, ter's correctness.

at of the "art of translation"—the idiomatic of a well-written passage into the mother tongue *rsa* (what we call "composition")? It must be at both forms of translation are the most con- ritten tests of anyone's knowledge of a foreign and so long as they are used in examinations ssary to give our pupils practice therein. Here us apply the root principle of the Direct Method, the direct association is the all-important aim, conclusion is obvious. No translation exercise llowed which would not conform to the definition ation of experience," that is, which is not a test *gefühl*. I mean that it must consist in the of passages that are well within the pupil's ., that he understands in the foreign tongue— an exercise in English style, though incidentally the pupil's knowledge of French. This kind of exercise may be practised from the first, but it e frequent. To give an illustration of the prin- followed in such translation, a pupil ought not translate "*Il aime le chocolat*," "*Rose a les s*," "*Quand il est l'heure de prendre le petit Paul descend l'escalier en courant*," &c., so e literal English versions intervene between the d the corresponding mental representations, not "visualisation" of the French is so perfect that pontaneously in English: "He likes chocolate," s blue eyes," "When it's time to have break- runs downstairs," &c.

translation from the mother tongue into the he same principle, of course, must apply. In ls, this kind of exercise must not be begun before nas a fair command of the foreign language, and able, so to speak, to produce the foreign version ginal free composition. It should be begun as ssible; indeed, I almost think it would be best his test out of school examinations altogether.

I teach, the more I realise the profound truth s dictum: "Die Übersetzung ist eine Kunst die ule nicht gehört." Even "retranslation," which excellent transition from free composition and "reproduction" to this kind of translation, should be post- poned to an advanced stage. The habit of direct associa- tion, *i.e.*, "thinking in French," must be firmly estab- lished, or the presence of the English words will begin to interfere. That is why it is important to do the "re- translation," at any rate at first, orally, without any English text in sight. The English should be hurled at the pupils, rapidly, in complete sentences, so as to call up immediately the mental representation which is in its turn to evoke some foreign equivalent, the important thing being that this equivalent should be good, not exact; there should be, as it were, a headlong jump into the foreign language, whence a return is then made approximating gradually to the closest equivalent that the language affords. It is easy to see what an excellent introduction such "retranslation" provides to the translation of original passages in English, which should, of course, proceed on exactly the same lines.

As regards the use of the mother tongue as a means of communication between teacher and taught, it must be clear, after all I have said, that the ultimate aim is to do without it altogether. But here again the teacher's own judgment is his only possible guide in practice; only it is important to keep one's eyes fixed on the ideal, and to be always consciously straining towards it.

And here I must stop. I hope what I have said may be of some help in formulating more clearly the policy of that section of reform teachers which Mr. Cloudesley Brereton has so happily dubbed "The Left Centre."

To sum up, the doctrine of the Direct Method is that *Sprachgefühl* is at least as necessary to the mastery of a language as grammatical accuracy—in fact, that the former, rightly considered, includes the latter; further, that in order to develop this *Sprachgefühl*, the language must be acquired by establishing a *direct association* in the learner's mind between the foreign expressions and the objects, actions, perceptions they express, and that to do this successfully there is but one way, viz., Nature's way. *Sprachgefühl* cannot be cultivated backwards. One must begin where the child begins—by the living spoken word in closest touch with sense-experience, to be followed in due course by reading and writing, in which sense-memory and visualisation take the place of sense-experience as "compellers" of the direct association.

Throughout the course of study the constant aim of the teacher must be to train this habit of direct associa- tion, and every means of instruction or practice must be welcomed or discarded according as it helps or thwarts its growth.

I think we little realise as yet all that this may mean to future generations.

To begin with, it provides a powerful lever to induce the child to put forth all his energy: for the power of doing things appeals to him as a rule more than the power of knowing things.

But what is still more important is that, by insisting on visualisation and all forms of sense-memory, it tends to develop in the child the habit of remaining in touch with reality when he enters the class-room, a habit which it is the aim of every teacher who is worth his salt to foster and develop in his pupils, so big with promise is it for the whole intellectual life of the nation—for is it not the preliminary condition or the concomitant of all vivid imagination, of all honest thought, of all sincere artistic expression?

Indeed, the Direct Method might well take as its motto: "The letter killeth, but the spirit giveth life."

THE GULF STREAM.

THE following extracts are from a letter by Mr. James Page which was sent in reply to a gentleman who had been told that a mild winter in New York City was due to the fact that the Gulf Stream is running sixty miles nearer shore than previously. It was published in the U.S. *Monthly Weather Review*, and we reprint parts of the letter to correct the numerous popular misapprehensions relative to the part played by the Gulf Stream in the economy of nature.

Speaking with precision, the term Gulf Stream should be limited to that continuous discharge of the water of the Caribbean Sea and the Gulf of Mexico which takes place through the Straits of Florida, a narrow outlet bounded on its western side by the State of the same name, and on its eastern by Cuba and the Bahama Islands and Bank. Through this channel, constricted in its narrowest portion to a width of thirty-two miles, there is a constant outflow of the warm, equatorial waters heaped up in this vast and almost land-locked basin by the persistent action of the trade winds, rising at times in midstream to a velocity of four or five knots, and having a constant temperature of 81° F. or 82° F. The impetus imparted to this water by the pressure from the rear is, moreover, sufficient to maintain it in motion for a considerable distance beyond the actual point of exit from the channel proper, which may be considered as terminating at Matanilla Shoal, the northern extremity of the Great Bahama Bank, in latitude 27° north. As a result the stream continues to be felt as a distinct body of warm water about forty or fifty miles in width, moving steadily onward, but with uniformly diminishing velocity and temperature, until a point opposite Cape Hatteras is attained, or even opposite the Capes of the Chesapeake. Beyond this point, however, the warm current spreads out over the adjacent area of the ocean like a vast fan, and the identity of the stream is consequently obliterated in the general eastward drift which characterises the waters of the temperate latitudes.

Speaking then with precision, the Gulf Stream is a current of warm water, forty or fifty miles in width, which emerges from the Straits of Florida, follows the coast of the United States northward as far as the Capes of the Chesapeake, and is there merged in the generally eastward drift underlying the prevailing westerly winds of the temperate latitudes. To describe it in the language of Maury as "a river in the ocean, having its fountain in the Gulf of Mexico, and its mouth in the Arctic Seas," is picturesque, but highly exaggerated and erroneous.

With reference to movements of the stream (viz., changes in its location as a whole), reports of which, furnished by navigators, appear from time to time in the daily newspapers, it may be said that these probably do exist, although within narrow limits. Observations of the "set" experienced by vessels crossing the stream, as also of the warmth of the surface waters, show that the position of the axis, or line of greatest velocity, as also that of the line of maximum temperature, may vary from day to day over a range of fifty miles. The methods of observations employed are, however, so replete with sources of error that little confidence can be placed in any single result. That such movements can have any effect upon the climate in the vicinity of New York is highly improbable, the stream itself in these latitudes being so dispersed as to be almost indefinable, and the modifications of the surface temperatures of the adjacent waters wrought by a temporary change in its position being certainly *negligible.*

HISTORY AND CURRENT EVEN

THE German Emperor has recently received the of the Grand Cross of the Order of the Silesian of Malta, *i.e.*, of a branch of the Order of S. Jerusalem. English-speaking readers know of t in the Middle Ages under the name of Hospital in modern times under the name of Knights of M owners of that Mediterranean island the poss which was the occasion for the renewal of our Napoleon in 1803. The order was founded to help to Palestine; it existed to fight the battles of Chr against the "infidel," *i.e.*, the Moslem. It sur twin-order, the Templars, and still exists, now German Emperor and Count Praschma said, to f forms of "infidelity." The Emperor's initiation ancient order is further interesting, as we know to regard himself as a successor of the Holy Emperors, those mediæval chiefs of Christendom, service, at least nominally, all those crusading h to fight. Compare William II. with, *e.g.*, Fred whom his Italian subjects called Barbarossa.

WE have had occasion in these columns, now a to refer to what might be regarded by an unp outsider as the curious inaptness of the House of C to its professed business—the constant alteration It may occur to our readers to wonder how it i saved, considering the ignorance of the average of that body, from greater evils than we actuall Of course, there is much that we do not escape: us are feeling now the effects of the want of with which the provisions of the recent Workme pensation Act were suddenly enlarged. But muc venience is avoided by devices to which the H Commons has had recourse to prevent it from the consequences of its own actions. One of the employment of a skilled lawyer to draft the Bil the "Government" introduces. Another was re in Mr. Burns's speech the other day. He "ad House to read the Bill a second time. As it wa with technicalities, the proper tribunal to conside a Select Committee."

WE are all thinking just now of the Confe Colonial Ministers which is shortly to take place minster. The problem of the government of the Empire, which is always before us, has therefo rise to several statements of opinion. We prop to quote and comment briefly on some of t important. Early in February, Mr. Alfred Lyttel gested, for the purpose of controlling an Imperial a board composed of representatives of the Kingdom, of India, of the self-governing colonies, the Crown colonies. But the most interesting pa proposal was that this board should sit ann successive years at Montreal, Bombay, Cape To Sydney. In other words, Mr. Lyttelton thinks Empire as composed mainly of four masses of Canada, India, South Africa, and Australia. Note omits the British Isles. That is pre-eminently p the future, or, to vary the phrase, history of th perhaps a distant one, when the British Isles, exhausted their iron and coal, and of small p compared with the rest of the Empire, will be important part of the British world.

COLONEL HUGHES, of Ontario, declared himsel Canadian House of Commons in favour of "o Imperial Parliament with representatives from ev

rt of the Empire." "This Parliament," he uld be independent of the British Parliament, ld confine itself to home affairs." (We are re- James VI. and I., who wanted to be King of ain, and told the *English* House of Commons n politics was not its business.) On the other Premier of Newfoundland severely attacked the Government, charging it with sacrificing the No colony would be safe," he said, "however its enactments, if the Imperial Government o itself authority to suspend such enactments." Laurier, the Canadian Premier, being appealed alf of Newfoundland, said that "so long as nd remained outside the Confederation, Canada tender her sympathy"; and we are told by one to know that "the proposed Imperial Council l askance by many prominent Australians, who ing misused to pledge the colonies to action ot approved by their Parliament, or to hamper sible Minister in an emergency." Does the pire as a whole desire centralisation, or Home

ITEMS OF INTEREST.

GENERAL.

dmasters' Conference, the Headmasters' Associa- the Assistant-masters' Association have all ssed resolutions recommending the adoption of ed pronunciation of Latin, the two former by rities, the last *nem. con.* Resolutions of these not binding upon their members, and may have t according to other circumstances; but it is most to find that the Board of Education has issued lo schools which earn grants directing them to eform, and instructing the inspectors to see that

This is bound to have far-reaching effects, h a loophole is unfortunately left for the con- objector. We are tired of the conscientious e is doing infinite harm to England in many . In this case he will have to make out his inspector, and we pray that the inspectors' be hardened. There is really no difficulty in as all testify who have tried it; and the gains ll round. We are glad to see that the Board on careful pronunciation of quantity.

t of the Teachers' Registration Council for 1906 rating reading. Regulation 4, relating to quali- d approved standards of general education, e operative in July last, and since that date in column B has been practically at a stand- five applications were received under regulation fers to training. It is scarcely surprising, the s, that teachers who trained in 1905, and who underwent probationary service which com- qualification under regulation 3, should, in umstances, feel unwilling to incur the expense on. A more disturbing qualification arises from t there is no likelihood that the number of such ll be appreciably increased during 1907. The which prevails as to the fate of the Register a serious check to the movement for training. received from training institutions shows that umber of students in residence is considerably of the last few years. The council feels that, ion following on the proposal to abandon the tending teachers are attaching but little import- ance to the clause in the regulations for secondary schools stating that after July next stress may be laid on training as a qualification for school work. Moreover, while the supply of teachers remains deficient, and the demand for their services increases, they are finding more and more encouragement to enter on school training as soon as an academic qualification has been attained.

WITH regard to the position of the Register after the present month, the report states that the acceptance by the Government of Lord Monkswell's amendment to the registration clause of the Education Bill of last year, by which the Government proposed to bring the present Register to an end, may be taken as indicating a policy with which the Board of Education feels able to concur, and the Registration Council now expresses its hope that the withdrawal of the Bill will not prevent the establishment of the scheme foreshadowed in the amendment, with the cardinal features of which the council is entirely in agreement. Experience in the administration of the Order in Council has convinced the council that a dual Register with a distinction based on the type of school in which the teacher has served is impossible to maintain. The council desires to see a Register in a single column to which the condition of admission shall be a high qualification, both academic and professional, and in which the name and type of the school where experience has been obtained, as well as the individual qualifications of the teacher, shall be indicated.

FURTHERMORE, the council expresses the conviction that the formation of a professional council responsible to the Board of Education for the policy as well as for the administration of the Register is a step which would command the confidence of the teaching profession. To constitute such a council fresh legislation would doubtless be needed, but, pending this, the Registration Council suggests that the Board should, with the advice of the Consultative Committee, apply for the issue of an Order in Council, which should provide for a scheme of registration prescribing regulations in less detail and allowing to a new Registration Council a larger discretion in the interpretation and administration of the Order. Should a new Register be constituted, the old and the new Registers should be dovetailed, but there are grave objections to carrying over to the new Register the names of 80,000 or more teachers now entitled to be on column A, with the 11,000 registered in column B. Some course must be discovered which will satisfy the joint claims of both branches of the profession, and will deal as tenderly as possible with the existing rights of registered teachers and at the same time will not swamp with numbers the new Register.

A RECENTLY published return (391) issued by the Board of Education deals with the application of funds by local authorities to education other than elementary in England and Wales during the school year 1904-5. The total expenditure, not including that of loans, reached £2,889,871, of which £736,966 was spent on secondary schools, with which pupil-teacher centres are classed. Of the latter amount, Wales spent £104,464. Towards the training of teachers, excluding pupil teachers, £48,835 was devoted, and the share of Wales under this heading reached £821 only. Nearly a quarter of a million pounds—of which Wales accounts for £13,278—went in scholarships, bursaries, and the payment of fees, and £152,605 was absorbed in administrative and legal expenses. About twice as much was devoted to evening schools, together with technical and other forms of higher education, as was expended on secondary schools. The report gives minute information

as to the amounts expended on different districts, and should prove a mine of wealth to the student of comparative educational statistics.

The Civil Service Estimates for 1907–8 show an increase of £254,046 for the Board of Education, bringing the Education Vote up to £13,593,646. For secondary schools and pupil teachers the amount ear-marked reaches £691,000, an increase of £86,400 on the total of the previous year.

The Board of Education has issued a list of twenty-five holiday courses which will be held on the Continent at different times during the present year, but mostly in the summer months. Six of the courses are in Germany, viz., Greifswald, Jena, Königsberg, Marburg, Neuwied, and Salzburg; four in Switzerland, viz., Geneva, Lausanne, Neuchâtel, and Bern; one in Spain, viz., Santander; and the rest in France, viz., Besançon, Dijon, Grenoble, Nancy, Boulogne-sur-Mer, St. Servan, St. Malo, Paris, Tours, Honfleur, Bayeux, Granville, Caen, Lisieux, and Villerville. The paper issued by the Board of Education gives the date of each course, the fees, return fares from London, lowest cost of boarding, principal subjects of instruction, address of the local secretary, and other details of importance to intending students. Copies of the paper can be obtained free on application to the Board of Education Library, St. Stephen's House, Cannon Row, London, S.W.

The Teachers' Guild has published particulars of the Guild Holiday Courses for next summer. Courses are to be held at Tours, Honfleur, Neuwied, and Santander. The courses will commence in all four centres in the first week of August. The preliminary meetings at Tours, Honfleur, and Neuwied will be held on August 2nd. The courses will open on the morning of August 3rd in the French centres, and on the morning of August 5th at Neuwied. At Santander the students should arrive before August 5th. The courses will occupy less than three weeks. Students are advised to stay a short while longer in the country. It is about the end of the third week that consciousness of progress begins to be felt. Some further practice after this stage is reached is very valuable. The representatives of the English Committee in 1907 are: at Tours, Mr. Edward Buck, Christ's Hospital, West Horsham; at Honfleur, Mr. J. V. Saunders, Hymers College, Hull; at Neuwied, Mr. E. Sharwood Smith, the Grammar School, Newbury; to whom (according to the centre chosen) intending students should send their names as early as possible. At Santander, Señor Don Julian Fresnedo de la Calzada, Santander, and Mr. S. Beirne, Astillero, Province of Santander, will act as representatives. Entries for the Spanish course should be made at the offices of the Guild, 74, Gower Street, London, W.C.

The authorities of the University of Grenoble have sent us a detailed catalogue of the arrangements they have made for their holiday courses, which will last from July 1st to October 31st next. In addition to the summer courses, others lasting throughout the year and suitable for foreigners will be held. The courses in the phonetic laboratory, described in our issue for July, 1906, are to be held again this year, and are likely to be well attended by teachers anxious to improve their French pronunciation. Teachers thinking of visiting Grenoble should write to M. Marcel Reymond at the University.

M. Ch. Lambert has sent us full particulars of the holiday courses for foreigners arranged at the University of Dijon. The courses will last from July 1st to October 31st. The work arranged for visitors is tical kind, and has been made as interesting a English visitors will find every arrangement made for their comfort. A booklet describing versity and the town, together with a copy of lectures, can be obtained on application to M. I the University.

On January 31st last a meeting was held in P friends and former pupils of the late M. Alexand for the purpose of raising funds to perpetuate h by the erection of a medallion in the Sorbonn the many years that he held the professorship he trained the majority of those who are to-da our language in France, and he probably di popularise the study of English than any o Among those on the committee appointed to fo scheme are MM. Liard, Croiset, Hovelaque, Garnier, Jamin, and Miss Williams. The secr M. Clermont, of the Lycée Janson de Sailly, Scott, of the Lycée Molière, to whom all su should be sent.

The proposal of the Manchester Education Co acquire the Platt Fields Estate at a cost of £1 the purpose of erecting training colleges, to whic was made in our February issue (p. 70), has be by the City Council. It was urged by the op the scheme that there was no guarantee tha trained largely at the expense of Manchester would remain in the city to be available for Manchester schools. Until the training of teac garded as a national duty this argument will militate against an adequate supply of training c

It is reported that at Middlesbrough the Committee pays five of the masters in the bo ment of the High School, and all the assistan in the girls' department, a smaller salary thar taker, who receives £143 8s. per annum. teachers referred to are four graduates in scien in arts. Do governing bodies in the north of consider education to be its own reward?

The Association of Headmistresses recently f memorandum to the President of the Board of dealing with the question of afternoon work in schools for girls. Answers received from school to the association in response to inquiries sh 198 headmistresses, 29 were in favour of a afternoon session—though it should be pointe many of these headmistresses were influenced local circumstances—and 169 were against after Similarly, 194 assistant-mistresses were in favo in the afternoon, and 1,619 against it. The m in support of the opinions expressed by the scho points out that Dr. Leslie Mackenzie has laid it (1) Experience has shown that concentrated w long rest following and much individual freed high tension of intellectual work; (2) it is sound to rely on the fresh hours for the organising a ing of impressions, and to let a long rest inter preparation is begun.

The views expressed at the International Co School Hygiene at Nürnberg, 1904, by Dr. Berlin, and Dr. Hintzmann, of Elberfeld, also mental fatigue entailed by school work, and tenance to the opinions expressed in the me Dr. Benda maintains that the afternoons of s

ek should be free for gymnastics, sports, and the claims of physical education are as import- ose of intellectual education. Dr. Hintzmann in order to lessen the over-pressure of teachers all instruction should be confined to the morning, required in gymnastics and games, and that ons should be left free for home-work, music, He holds it proved that where this arrange- ied, the pupils are brighter in class and more study at home, whilst the freedom from after- ing has an equally beneficial effect upon the he teacher.

cation Committee of the West Riding County oposes to hold a short vacation course for secondary, technical, and elementary schools. will be held at the Municipal School, Scar- uring the early part of August, and will last for night; it is not limited to West Riding teachers, open to all on payment of the fee. The aim se is to give teachers the opportunity of study- ethods of teaching ordinary subjects rather than cific instruction. The committee is not yet in to give details as to the lectures and lecturers, ions being at present under consideration. The ubjects will probably be included, some of them natives: Introduction to the study of education; luction, singing, and methods of teaching schools; teaching of elementary science, mathematics, history, geography; school ature-study; physical instruction. Further par- l be ready early in May, and will be forwarded ion to Mr. A. V. Houghton, County Hall,

al Horticultural Society will hold an examination and Allotment Gardening on April 24th, intended onfined to elementary and technical school It has been undertaken in view of the increasing country districts for schoolmasters competent e elements of cottage gardening. The society's will be issued to those who show sufficient e with the subject to warrant their teaching it. esiring to sit for the examination should apply r a copy of the syllabus, containing an entry e secretary of the society, Vincent Square, West-

ctor of public instruction in Afghanistan, Dr. ni, is at present occupied, the *Pioneer Mail* establishing schools throughout Kabul, which ided, for educational purposes, into more than cts, each having a lower primary school. Out ower primary schools more than twenty upper hools, and from the latter five middle schools, are up, which in due course will contribute to form schools in Kabul, besides the Habibia College, pares for degrees. Three years hence, schools established on similar lines in large provincial

h edition of "Books for the Bairns" is being n the *Review of Reviews* office. The English these booklets is, as is well known, sold at one l it is proposed to sell the French edition at 2*d*. 'Enfants" has been published, and will be fol- tly by others

A. Cooper, B.Sc. (Lond.), senior mathematical the Widnes Secondary School, has been appointed of the Widnes Municipal Day Secondary and School and Pupil Teacher Centre.

Candidates for boy clerkships, of which particulars have appeared in The School World (vol. viii., p. 308), must make application on or before April 11th. The usual examination for appointments as apprentices in the dockyards will be held in May. Forms must reach the Civil Service Commission on or before April 15th. Candidates must be between fourteen and sixteen years of age. The subjects of examination are arithmetic, English, geometry and algebra, elementary science, and drawing. The pay of apprentices increases from 4*s*. a week in the first year to 14*s*. a week in the sixth. The examination for artificers in the Royal Navy is to be held at the same time. The age limits are fifteen and sixteen years. The scope of the examination is similar.

Mr. Edward Arnold directs our attention to an inaccuracy on p. 97 of our last issue. Our reviewer, writing of three volumes of the "Epochs of English Literature" series published by Mr. Arnold, refers to them as costing "eighteenpence the set." The volumes are sold at 1*s*. 6*d*. each.

SCOTTISH.

Dr. Struthers, secretary to the Scotch Education Department, has issued a circular with reference to the schemes of the French and Prussian Governments under which a number of young teachers in Scottish secondary schools may be employed in the secondary schools of France or Prussia for one year as temporary assistants. The general conditions are the same as in previous years, and those desiring fuller particulars should apply as early as possible to the Education Department. In a second circular dealing with French and German assistants in Scottish schools and colleges, Dr. Struthers points out that it will greatly assist the ultimate success and spread of a movement which, it is believed, may be of great value for the teaching of modern languages in all three countries if managers who are willing to make this experiment in a sympathetic spirit will submit a frank report at the close of the year upon the results that have been obtained, dealing with the difficulties that have occurred, and with the conditions that should, in their opinion, be fulfilled if the best use is to be made of these assistants.

Though, to the disappointment of a large section of the public, no mention was made in the King's Speech of the subject of education in Scotland, the Secretary for Scotland introduced a Bill into the Commons on March 20th. In doing so, Mr. Sinclair explained that the Bill provides for school meals and the medical examination of children; confers on school boards power to make by-laws enforcing the attendance to a reasonable extent at continuation classes of backward pupils up to the age of seventeen; facilitates the transfer of insufficiently endowed voluntary schools to school boards; and abolishes the cumulative vote for school-board elections. The Labour Party proposes to bring forward an Education Bill of its own dealing with pretty much the same subjects, but from a different point of view.

The Educational Institute of Scotland at its last general meeting approved of the principle of direct representation of its interests in the House of Commons, and instructed its general committee of management to prepare a return showing the financial burden that such a scheme would entail. This has now been done, and the scheme has come up for consideration before the various local branches. Almost without exception these have given a unanimous vote against the scheme. The one branch—Inverness—that has supported the principle of direct representation has also declared against any

additional levy for the upkeep of such a representative. Scottish teachers are apparently well satisfied with the intelligent and sympathetic interest the average Scottish member takes in education; and, judging by the strong support these have given to the plea for an improved superannuation committee, teachers have every reason to stand meanwhile by the *status quo*.

The transference of the denominational training colleges to the Provincial Committees has been practically completed, and for the future these institutions will be national in name as they have long been national in function. The agreement that has been arrived at in regard to the teaching of religion should prove of considerable interest to English educationists in view of the movement for nationalising training colleges there. By this agreement the Churches undertake the entire charge of the religious instruction. They pay the teachers, they control the creed to be taught, they examine and decide, so far as religious subjects are concerned, on the merits of the students whom they teach. The Provincial Committees on their side guarantee that religion will have a place in the time-table of the colleges, and allow the Churches to employ, on such terms as were mutually agreed upon, the staff of the colleges to teach religion, should the Churches find suitable teachers among the staff. The price paid by the committees to the Churches for the existing colleges would, if capitalised, be more than ample for paying the salaries of those engaged in imparting religious instruction. It will thus be seen that, without a single word of opposition from any quarter, an agreement has been come to whereby the existing staff may be employed in the religious teaching. In England a similar proposal has been made a *casus belli* between two of the estates of the realm, and may result in a revolution in the constitution of the country. Certainly these things are managed better in Scotland.

IRISH.

The number of students who have given notice of their intention to present themselves for the examinations of the Intermediate Board next June is the largest since the establishment of the system, viz., boys, 8,678; girls, 3,871; total, 12,549. This is an increase on the corresponding figures of last year of 359 boys and 486 girls; total, 845. As compared with 1905 the increase is 2,261.

The Board's Rules for 1908 still excite considerable criticism, centring mainly round two points: (1) the necessity of passing in two languages besides English, and (2) the treatment of arithmetic, which is now amalgamated with algebra as one subject, the proportion of marks assigned to it being on the pass papers 30 per cent. and on the honours papers only 10 per cent. There is spreading a deep dissatisfaction with the present system, which the new rules have only intensified, and there is a very general feeling that it is useless to criticise or offer suggestions on the new rules, as these are only the result of an *impasse* at headquarters. *Quidquid delirant reges, plectuntur Achivi.* If the Government and the Commissioners are at loggerheads, it is the unfortunate schools, pupils, and teachers who must suffer.

We trust Mr. Birrell will see his way to effect some radical improvement in Irish education. There has been enough of verbal sympathy with its shortcomings, and it requires considerable explanation to account for the difference between the figures for Irish education and those for England and Scotland. In 1901-2 the estimates for education were: England, £9,765,000; Scotland, £1,353,000; Ireland, £1,301,000. For 1906-7 the figures w land, £13,139,600; Scotland, £1,983,000; £1,303,233. While the increase for England in is over 30 per cent., and for Scotland nearly 50 the figures for Ireland remain practically as they some palliation Mr. Birrell says that the figure secondary education are not included, but as the the Intermediate Board has fallen about £1 would not improve the comparison between the

The Association of Irish Schoolmistresses annual meeting at Alexandra College in Febru after the election of officers, an interesting pape by Miss Tremain, mistress of method, on "Higl tion for Women at Home and Abroad."

The January issue of *The Journal of the I* (price 6*d.*) contains a large amount of varied information on its work. It gives a full acco meeting of the Council of Agriculture near the year, with Sir Horace Plunket's address and def policy. A good deal of space is given to the in of potatoes, to the nature of injurious orchard i to experiments in flax. The Avondale Forestry described in some detail. There are statistical fisheries, of imports and exports from Irelan emigration, of which the numbers continue to 31,270 for last year as against 27,189 for 1905. also tables giving the results of the local scien examinations for 1906 (day and evening classes) tion with the technical schools throughout the

A White Paper was issued in March with the Royal Warrant amending the statutes of the Ro sity, providing the Senate power to deal with d and violations of its reguations. The Senat authority to decline to award a pass at the ex to impose a fine not exceeding £5, to remove graduate's name from the books, or to declin him to enter for its examinations for as lon thought fit. Any person convicted of an indict before entering for any examination must first express permission of the Senate.

The Senate of the Royal University has hel meeting to consider Mr. Bryce's University sch resolutions the senators passed may be described neutrality, displaying an obvious desire not to cor selves before seeing the scheme on paper. It is to see what other attitude could have beer especially as Mr. Bryce's proposals are said to b considerable modification under the new *régi* chief resolution runs: "That while the Senate it was its right and duty, as long as the variou the settlement of the question of university ed Ireland were under consideration, to express clearly and strongly on the undesirability of est single rigid system of university education, s whole intellectual culture of the country in one n that the outlines of a scheme have been put forw name of the Government with whom the re rests, the Senate does not deem it proper to take which might prevent or obstruct the immediate one of the greatest and most crying grievances u the Irish people labour. . . . It cordially welcon nouncement that the Government will take this hand during the present session of Parliament. the Senate is prepared to give the most careful a consideration to the scheme of the Government lished in full detail, it submits the expression

in any scheme which would involve the estab-
one or more federal universities, it is essential
avoid the evils of one stereotyped system of
tion that there should be granted to the federal
largest amount of autonomy on the lines re-
by the Robertson Commission, and with prac-
ity by the recent Commission." Another re-
ied certain of Mr. Bryce's statements calling
niversity a failure, pointing out that the candi-
xaminations in 1906 were 4,000, or nearly four
ay as on the rolls of the Trinity College; that
tudents hold distinguished positions in all parts
sh Empire; and that it can in no sense be
a "mere examining board," considering its
he Queen's and other colleges.

her hand, a large meeting in Galway has pro-
st the exclusion of the Queen's College there
eme. A meeting in support of the attitude of
ege has been held in Cambridge, with Sir
in the chair, and a resolution against Mr.
me carried on the motion of the Master of
nded by the Master of Christ's. The Catholic
nd Undergraduates' Association, again, recog-
Bryce's scheme a solution in consonance with
s and acceptable to the Irish people.

WELSH.

. DAVIES, the new secretary to the Welsh
ucation, evidently appreciates the possibilities
which he is called. He has declared himself
"Wales is still aspiring after higher and
under freer development of all that is best
nal life, and the need for wisely fostering
ecking this is admitted by those in authority."
to say that it was to working out the problems
ction that he had now received a call which
evoting to them the rest of his life, and he
could desire no higher honour than to be
e head of a department of the State which
ith the moulding of the lives and the shaping
ies of the thousands of little children in his
To be called to such work was, in his opinion,
ater honour than to be the recipient of a

cellent, but the "moulding of the lives" is
er, though still inexact, sense, in the hands of
and the question arises, what will the new
e able to do to improve the position of the
as to enable them to work with a due sense
gainst the carking care of small remuneration,
ve the conditions under which they have to
larly in the case of large classes? These are
ions of finance. What will the new depart-
to do in the way of inducing local education
pply larger resources to effect these objects,
teachers and scholars with all that is neces-
gress. Can the new department influence
cils to levy higher rates for educational

n stated officially in the House of Commons
enditure of the new Welsh Department will
er the supervision of the accountant general
. It may be assumed that the scale of grants
h schools will remain at the same rate as
ls.

THE Aberdare Education Committee has decided to grant six scholarships of £10 each to teachers attending the summer school in handicraft at Barry. The Cardiganshire County Council has, during the last term, paid the expenses of country teachers attending a course of lectures in geography and methods of geography teaching at the University College of Wales, Aberystwyth.

THERE has been a discussion with regard to the action of the Pembrokeshire County Council in dealing with non-provided schools. The controversy has centred round the fact that the headmaster in a non-provided school, on the termination of his engagement, was, as it is urged, willing to accept his old post as a new appointment at a lower salary. This seems to have been a voluntary agreement, and nothing more need, therefore, be said about it. But in a speech of the chairman in justification of the committee, certain figures deserve to be quoted. He says: When the schools were taken over in 1904, the staff of the school numbered fourteen. Now it numbers seventeen. The salaries were (when the schools were taken over) £610, including what was paid in lieu of rent; to-day it is £709, an increase of £100. But the point of interest in the chairman's figures is this: in 1904 the average salary was £43 11*s.* 6½*d.*; now the average is £41 14*s.* 1½*d.* The question, quite apart from the particular controversy, is: Can an education committee with a staff of seventeen teachers on the above average salary be considered to make adequate payment to members of a profession charged with the important work of training the young? Formerly, as a non-provided school, this was the responsibility of the managers. Now the responsibility is that of the Education Committee. If this is to be the view of the value of the services of teachers, what inducement is there in Wales or elsewhere for highly capable men and women to enter the profession of teachers?

MR. FRANK R. BENSON is advocating the desirability of a historical pageant for Denbighshire to "ennoble, educate, and recreate the people." He says: "Looking round Denbigh Castle, with its memories of the past, memories of public service such as have made our Empire what it is, I need not dwell on the effect to be produced by the mere recital of the history of its walls and their defenders."

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

A New French Grammar. By R. H. Allpress and J. Laffitte. viii + 188 pp. (Cassell.) 1*s.* 6*d.*—This grammar is intended for pupils who have already acquired some slight knowledge of French. It is more than the title implies; for it contains a reader and exercises in addition to the grammar. The passages in the reader are well selected. Mr. Millar's illustrations are often very good. The grammar is in English, clearly worded. The exercises consist of questions on the text in French, practice in applied grammar (especially to be commended), sentences for retranslation, and suggestions for free composition. In a note it is stated that words identical in French and English have been omitted from the vocabulary, but we find that "*absorber*, to absorb; *accepter*, to accept; *admirer*, to admire," &c., have been retained, while on p. 69 we counted ten words not included in the vocabulary, although we have not seen a statement that this page has been ignored in the compiling of the vocabulary.

A Skeleton French Grammar, with Exercises. By H. C. Atkins. viii+51+80 pp. (Blackie.) 2s.—The first edition of the exercises is now bound up with the second edition of the Grammar, in which a few slight alterations have been made.

German for Beginners. By L. Harcourt. Part I., vii+135 pp.; Part II., vii+220 pp. (Whittaker.) 1s. net and 2s. 6d. net.—This is the third edition, now issued in two parts, of a work which is the outcome of much experience. We recommend it to those teachers who are not already familiar with it.

L'Histoire d'une Tulipe, edited by T. R. N. Crofts, 94 pp., and *E. Laboulaye, Abdallah*, edited by J. A. Wilson. 80 pp. (Methuen.) 1s. each.—These are the opening volumes of a new series—Methuen's Simplified French Texts. The idea of issuing stories by standard authors in a simplified form is a good one, and these little books are welcome. Some teachers may regret the fact that a vocabulary is provided; the majority, however, will regard this as an advantage. The first story is an adaptation of Dumas's well-known tale "La Tulipe Noire," which has been skilfully reduced to about one-sixth of the original. The text is carefully printed. The other story is less familiar; it was, however, well worth editing, although the scenery is oriental, and not French. For neither book is the vocabulary quite complete; in the former we miss, for instance, *noir, interrompre, pot, vol*, and in the latter *casser, cueillir, cuivre, poussière, crier, vite*.

Corneille, Le Cid. Edited by H. W. Eve. xvi+143 pp. (Cambridge University Press.) 2s.—Any book edited by Mr. Eve is sure to be welcome, and this edition of "Le Cid" is no exception to the rule. The notes are quite admirable. If any fault is to be found with the introduction, it is that there is not quite enough of it. Thus fuller information about the *Querelle du Cid* and its effects on Corneille's development would have been valuable; and considering the ignorance of French prosody still prevailing in most of our schools, a note on the Alexandrine would not have been superfluous. We also miss the *Examen* which Corneille prefixed to the play.

C. Nodier, Les Quatre Talismans. Edited by W. G. Hartog. 70 pp. (Rivingtons.) 1s.—An oriental tale of some interest, with adequate notes and exercises of the kind usual in this series. Teachers using these books would probably be glad if the exercises in applied grammar and the *exercices écrits* were fuller. It seems a waste of space to include in the latter "Dictée" and "Réponses aux questions." If a little more trouble were given to these sections the readers would be much more useful.

Labiche, Lefranc et Jessé, Le Major Cravachon. Edited by W. G. Hartog. 62 pp. (Rivingtons.) 1s.—An amusing farce, with rather slight exercises and hardly any misprints, which is a distinctly novel feature in this series.

Madame de Bawr, Michel Perrin. Edited by F. L. Carter. viii+87 pp. (Macmillan.) 1s.—This interesting tale has been well adapted and edited by Mr. Carter. The text is clearly printed, and the notes give much useful information. Sometimes, it is true, the phraseology is a little too learned, or actually clumsy. The vocabulary is complete. There is a brave array of appendices to suit all tastes: a *questionnaire*, then the familiar "words and phrases for *viva voce* drill," a key to which is supplied at the end of the book, exercises in applied grammar and in retranslation, and passages for retranslation. cessions made to reform teachers are a welco the times.

Jean Macé, Le Petit Ravageot. Edited by Wilson. vii+87 pp. (Macmillan.) 1s.—This, foregoing, is a volume in Mr. Siepmann's Prim Series, and what has been said about "Mich applies to this volume also, except that the uniformly simple and straightforward. On the we have missed a few words in the vocabula *maître, jouer*.

Classics.

The Story of Robinson Crusoe in Latin. A Daniel Defoe's famous book by G. F. Goffea amended, and rearranged by P. A. Barnett. (Longmans.) 2s.—This book is welcome. readers for beginners in Latin are very scar boy can fail to be attracted by Robinson C will be doubly so if he has made Crusoe's a already in his native tongue. The book is wel rapid reading. It is a pity, however, that the not revised along with the text. The day h when *j* could be used in Latin books, but again. We should have preferred, also, tha vowels should have been marked, since the boo for the early stages of Latin. A practical s might therefore have made a better job of it; b less we are grateful.

First Book in Latin. By A. J. Inglis and man. xi+302 pp. (New York: The Macm 3s. 6d.—We can see no reason for the existe book. There are others of exactly the same ki only advantage which this has over some is vowels (including concealed longs) are marked. consists of exercises on the Latin grammar, a the grammar is arranged in a primer. Thu composition exercise is made on the first decl the third persons present active of the first c and the unhappy boy has to exercise his wits sentences like *dea vocat, regina puellam laud deas laudat*. Many of the exercise phrases ar sentences: *e.g., vita feminae, vitae feminarum*, It may be a week before the schoolboy gets region of the eternal feminine; and then he *nauta Romanus de Gallis feris narrat*. We th less in so unintelligent a book to suggest imp but it may be well to point out that V is consonant as well as I (p. 13).

Colloquia Latina, adapted from Erasmus. V and Vocabulary by G. M. Edwards. xxiv (Cambridge University Press.) 1s. 6d.—We ha thank Mr. Edwards for a school book in ma admirable. The Colloquies of Erasmus, lik Corderius and Vives, were written for use in s the modern neglect of them is one of many we have been following false lights in these It is impossible to read any of these boo realising that to the writers Latin was a livin We are also amazed at the scope of the vocal the mastery of the language which they ir Edwards has been obliged to suit our more dition by greatly simplifying these; but the will do a great service if it helps to reinstate tongue in its place. One book may lead to a perhaps the schoolmaster's attitude of mind m more natural. These racy dialogues cannot fail

l we hope they may be widely used. The s are: On the Way to School, A Lecture on he Half Holiday, Young Athletes, Young A Lazy Serving Man, A Cretan Rip van Wanderer's Return, The Dinner Party, Back ars, The Shipwreck, The Drive to Antwerp, d his Godson—a sufficient variety in truth. :re were no vocabulary; and there is another erious blot on the book in an analysis of h is quite out of place in a Reader.

›etical Encyclopedia of Institutions, Persons, , of Ancient History and Geography. By Dr. 224 pp. (Swan Sonnenschein.) 3*s.* 6*d.* net. does not answer to its pretentious title. It r brief accounts of many of the names men- lassical books, usually two or three lines; three pages, Cicero one, all the Claudii are nto one and a half. But we have failed to find ms: *e.g.*, Senatus, Comitia, Ecclesia, Archon, all absent, to take a few at random. The , &c.," together with "some very famous ially in the world of letters and art," will l appear in another volume, an abridgment Dictionary of Classical Antiquities. As far he book may be found useful, but chiefly as a those who already know in general and wish particular. Thus of Damocles, we are told ' famous in connection with the incident of anging by a horsehair at the banquet given ." Amongst the absent names are Constan- Plato, Homer, Pheidias, Demosthenes; while r has a page, Catiline nearly as much, e-third. Clearly it is not a scholarly book.

Manual of Greek Iambic Composition. By ms and Dr. W. H. D. Rouse. Third edition. ackie.) 2*s.* 6*d.* net.—We have seen no better this for teaching Greek verse composition. eing supposed to know how to scan, is at once sound, practical method of writing complete As the chief difficulty occurs in the middle this is tackled at once. The beginner is ild up his verse about the Bacchius and Cretic ding the second, third, and fourth feet, and olving these he is led on to more complicated . There are abundant original examples, well vorking up to leading articles from newspapers ions from Euclid. The chief fault we find is hnical terms tend to become complicated, and on the "Cretic at the end," is hard reading. the head of ex. v. is not a good one; as an the rule it is excluded by the general rule on e is a good list of hints and helps on grammar ersification, and specialities of iambic prosody; such an anomaly mentioned as a first person as given as a typical first aor. partic.

Geography.

d the British Isles. By Lilias Milroy. 196 pp.; ckie.) 2*s.*—The author has written this book fashion, and designed it for use in junior forms. Each chapter is followed by a short physical features and political facts, and an nade to show the connection existing between nd the former. This connection, however, is ted upon nor developed, as it should be, if it modern geography teachers. There are certain which militate against the utility of the work. There is no index; the maps do not illustrate points in the text, and are merely poor substitutes for those of the ordinary school atlas; and there are several statements here and there which, to say the least, require modification. Portland cement, for example, has no industrial affinity with Portland stone; olive trees are not found in any quantities on the Plain of Lombardy; all the rocks of the "Iron Gates" were not blown up; the Karst can hardly be considered as a purely *Herzegovinian* feature; and the Gulf Stream is not the determining factor of Norway's open harbours.

The British Empire. By F. D. Herbertson. 254 pp. (Black.) 2*s.* 6*d.*—This, the last issue of the "Descriptive Geography" series, is largely a compilation of extracts from the preceding six volumes. There are, however, several new "descriptions"—chiefly of occupations and industries—and the old plan of a formal introduction has been dispensed with. To take its place, Mrs. Herbertson has inserted short commentaries in leaded type, which serve the purpose of linking together the several extracts. The whole idea of the books—travellers' stories and original authorities—makes them the best geography "Readers" on the market, and as such we can safely recommend this or any other of the series.

The British Isles. By Prof. L. W. Lyde. 6th Edition. 128 pp. (Black.) 1*s.* 4*d.*—This is geography on the note-book system, and we like it. The six editions (in eight years) speak for others as well as ourselves, and bear silent witness to Prof. Lyde's reputation for accuracy and aptitude. In this new edition the paging is identical with that of the 5th edition, but several small additions have been made, and statistics (the reader is not troubled with much in this way) have been brought up to 1905. The "problem" paper at the end of the book is not particularly satisfactory. It is far too short and far too much like an ordinary examination paper.

An Introduction to Practical Geography. In Three Sections. By A. T. Simmons and H. Richardson. (Macmillan.) 1*s.* each section.—The issue of this deservedly praised and now well-known book in three separate sections at a moderate price is to be commended. As we reviewed the book in the March (1906) number of THE SCHOOL WORLD, and as our opinion of it, after a more intimate acquaintance than was then possible, is unaltered, there is no need to say more than that teachers of boys and girls of thirteen years and upwards—especially "upwards"—should get the book, whether in the full 3*s.* 6*d.* edition or in these separate 1*s.* parts. Section I. deals with "Maps" and map-making; Section II. with "The Globe" and mathematical geography; Section III. with "Climate" and climatic phenomena. Throughout the sections much, though not exclusive use is made of interesting exercises and problems.

Mathematics.

A First Statics. By C. S. Jackson and R. M. Milne. ix+380 pp. (Dent.) 4*s.* net.—The movement towards a change in the character of elementary text-books on mechanics is well represented in the book under notice. The first chapter does not consist of a discussion of the laws of motion, nor does it give a proof of the parallelogram of forces, but gives a clear statement of the principle of the lever, illustrated with many examples of a simple, practical kind. The next two chapters treat the resultant of two forces, graphically and analytically, and these are followed by a chapter on moments. Machines, work, efficiency, are taken up in chapter v., and friction

in chapter vi. A long chapter is devoted to centres of gravity; frames and link polygons are dealt with in two chapters. The penultimate chapter discusses the general conditions of equilibrium, while the last treats of forces in space. The mere enumeration of the contents, while showing the order in which the subject is treated, does not indicate the great variety of practical illustrations in which the book abounds, and which give it a character that differentiates it considerably from the older type of text-book. Though practical in its numerous applications, the book is thoroughly trustworthy as an introduction to the science of mechanics, and can be safely recommended to the attention of teachers who are in search of a good book for beginners.

Elementary Problem Papers. By Clement V. Durell. vii+120 pp. (Arnold.) 1*s.* 6*d.*—This collection of Problem Papers is stated to be intended for boys who have just finished the usual elementary course and are starting more advanced work. The various sets, seventy-eight in all, each containing eight questions, include several questions of greater interest than are usually to be found in such collections, and should prove of considerable value to teachers and to pupils who wish to test their knowledge in view of examinations or for recreation.

Geometrical Exercises. Parts i., ii., iii., iv. By L. Ashcroft. 32 pp. each part. (Arnold.) Paper covers, 4*d.* each part.—These Exercises are designed for classes which do not use a text-book. The leading theorems of plane geometry, including the geometry of similar figures, are printed in bold type; many of the questions, especially in part i., are exceedingly simple, and lead up to the consideration of the more elementary properties of geometrical figures; and ample practice in drawing diagrams is provided. For teachers who prefer to do without a text-book these Exercises may be useful.

The Teaching of Elementary Mechanics. 74 pp. (Macmillan.) 2*s.* net.—This book contains a report of the discussion at the meeting of the British Association at Johannesburg on the teaching of elementary mechanics, as well as a number of contributions sent to the editor, Prof. Perry, by several gentlemen who did not take part in the discussion; it also includes a paper by Mr. Ashford on "The Teaching of Mechanics by Experiment," which appeared in THE SCHOOL WORLD, vol. viii., pp. 335–9. The feature that strikes the reader of the book most forcibly is the divergence of views expressed by the various contributors; there is perhaps only one point on which all are agreed, namely, that in the earlier stages the study of mechanics must be based on experiment. There is, however, considerable difference of opinion on the question whether the study should begin with statics or kinetics. Of course, examinations and "academic methods" are subjected to fierce criticism, though Prof. Larmor's weighty remarks on examinations seem to us to be a much needed corrective to the too unmeasured denunciation of some of the contributors. In spite, however, of the great differences of view displayed in the book, it is a good sign that the teaching of such an important subject is being seriously debated by men of the greatest eminence in the scientific world, and nothing but good can follow from such discussion, though for the moment the "average" teacher, as well as the "average" boy, may be left in perplexity. It may be pointed out that several contributors lay great stress on the faculty of stating results in clear and accurate language; unfortunately, this faculty is but poorly developed in most *pupils, and it requires* time for its development. After all, a thorough training in English is a nec the successful study of mechanics.

The Elements of Book-keeping. By M. Jenkinson. viii+208 pp. (Arnold.) 1*s.* 6*d.* clearly written book, thoroughly satisfactory as duction to the subject.

Modern Commercial Arithmetic. By Geo. H. Part i. Elementary Stage. iii+163 pp. (M 1*s.* 6*d.*—A well-written book, with numerous ex a practical kind, on the elementary subjects of c arithmetic.

Science and Technology.

A Method of Teaching Chemistry in Schools. Hughes and R. Stern. xii+120 pp. (Cambr versity Press.) 3*s.* net.—Kipling has insisted are many ways of constructing tribal lays, ea which is correct. Similarly, we surmise there ar satisfactory methods of introducing young pup study of chemistry as there are experienced trained teachers. The only real test of the me course of work outlined in this book is to try i average class. Though we recognise the freshnes ment of a familiar subject and the indications affords of the skill of the mistresses who have it, we are disposed to think that most teachers to follow the line of research already adopted school laboratories. At the same time, the earn teacher, responsible for the work of elementa should obtain and study the lessons containe volume.

Life and Evolution. By F. W. Headley. (D 8*s.*—This book is the outcome of lectures to H boys, and is written in an easy and, at times, style that should secure for it a wide circle o Mr. Headley begins at the bottom of the tree of takes us by steps, some of them rather long, mind of man. We are inclined to find fault with except in dealing with reptiles and birds, then of *evolution* in these pages: *progress* in plenty evolution in the usual sense. The author holds heretical opinions about moulds (mucor) and ba garding them as "in the main animals"; no biologists agree with him as to the priority of the appearance of life upon earth. A few misstat facts occur: Cordylophora thrives elsewhere in t than at Hickling; we have ourselves found it in Ant at Irstead; the teeth of Hyrax can hard scribed "as those of a rabbit"; *Lacerta vivipara* leave her young to their fate, she accompanies h for some weeks; we should be glad to have som in support of the statement that whales underwent denudation of hair. Attention may be directed misprints: p. 70, Plesiosauris; Fig. 49, caracoid nob (bis); p. 134, four lines from bottom, shows p. 245, *Pisum satisum.* But these slips do n from the general excellence and readableness of th

(1) *A Health Reader.* I. By Dr. C. E. S E. Stenhouse. 100 pp. (Macmillan.) 1*s.*

(2) *Hygiene and Temperance.* By Florence L 127 pp. (Nelson.) 1*s.*

(3) *Good Health.* I. By Dr. F. G. Jewett. (Ginn.) 2*s.*

(4) *Good Health.* I. By F. H. Shoosmith (Charles and Dible.) 2*s.* per dozen.

These four little books are one and all admir in intention and execution. The elementary facts

ıre set forth in plain, straightforward language
ıild can understand, and their bearing on rules
conduct are clearly explained.
r and Mr. Stenhouse cover the whole ground
ume, and have succeeded in presenting their
ut employing a single difficult or unfamiliar
regret that in the account of respiration they
sucking" the air into the lungs, and make no
atmospheric pressure as the cause of the
air. "Sucking" always seems to put the
e at the wrong end.
her's book is intended for teachers and higher
treats the subject from a more domestic point

tt's "Good Health," which forms part of
Hygiene Series, is an American work. Its
ions, and narrated episodes are so entirely
ic that, excellent as it is, it is hardly likely to
d in this country.
mith's similarly titled booklet is concerned
eathing and circulation. The account is very
; but there is one curious omission, viz., the
of inhaling through the nostrils and not
open mouth. This book is a marvel of cheap-
is printed in good clear type and is well

Book of Botany: Part I., The Anatomy of Plants. By M. Yates. 147 pp. (Whittaker.) t is little more than a profusely illustrated botanical terms. Twenty years ago it might popular; to-day its chief readers will probably hey still survive here and there—who think e of botany consists in the ability to describe technical language.

Miscellaneous.

and National Progress. Essays and Addresses, By Sir Norman Lockyer, K.C.B. xi+269 pp. 5s. net.—The publication of this volume mind us how much higher education owes to us and persistent advocacy by Sir Norman the need for scientific habits of thought in all uman activity. Throughout the long period these essays he has not ceased to urge upon smen that the best preparation for peace and cientifically graded scheme of national educa- shioned as to form an organised whole from ary school to the university. Many of the re- which Sir Norman Lockyer and other men of ded in the early 'seventies have long been t though these efforts have been felt in many nd a great deal has been accomplished, there se pioneers have taught us still to be done so dary and higher education are concerned. The science have permeated pedagogic practice; in schools where science as such meets with l, linguistic subjects are taught in accordance st approved scientific methods. In these essays wish expressed to oust literary subjects from lum; the plea is rather for a well-balanced ork in which the humanities and science unite e production of well-educated citizens. We mmend the volume to the attention of teachers.

ic Whistle and other Fairy-tale Plays. By it. 156 pp. (Longmans.) 2s. 6d. net.—These neither better nor worse than others of their person of average intelligence could, by taking ght, turn any fairy-tale into an actable play for children. For fairy-tales have the advantage of possessing a ready-made beginning, middle, and end. Nor is it difficult, with practice, to invent such dialogue as the following:

"*Fairy Godmother.* Now, your Majesty, didn't you say that whoever should make the Princess laugh should marry her?

King. Yes, old lady, I believe I did.

Fairy Godmother. Then (pointing to Jack) here is her husband.

King. Oh, come now, I really can't give her to him. Why, I don't even know who he is."

There is no objection to such pieces being learnt and acted by children at home during the holidays. But it is a pity to offer such dramatic pabulum to school pupils. The time spent in learning by heart words that are not in any sense literary can be ill spared in these days of an overcrowded curriculum. However, we would not be too hard on plays that can well serve as matter for amusement on wet days and birthdays. Mr. Nesbit has at least not attempted to be too funny, or to appeal to the grown-up understanding while he is amusing the young.

CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in The School World *will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

Pessimism in Education.

The true interest of Prof. Armstrong's panegyric of "Plain Reading" in the March number of The School World lies in the profound scepticism of the writer as to the value of any directive influence in education. Under the guise of a recommendation to teachers and controlling authorities, Prof. Armstrong expresses opinions which can only be taken to mean that, at least in so far as any cultivation of the humanities is concerned, he despairs of the teacher, and despairs of the school. "The vast majority of our teachers cannot expound the beauties of our classics with advantage." "The average teacher simply cannot understand, say, 'In Memoriam.'" Such are the assumptions with which he sets out, and he takes for granted that the ordinary literature lessons may be fairly described as "the dreary repetition by a semi- or demi-semi-competent teacher of somebody's pedantic, if not sacrilegious, annotations of one of Shakespeare's plays." There is likely to be a grain of justice in any charge, however extravagant; and the article in question might not have been without its use as a forcible protest against methods of teaching that are as yet by no means wholly discredited, if the indictment had been accompanied by any helpful suggestion tending to improve existing conditions. But the writer's proposals are essentially destructive in their tendency. The teacher is apparently to efface himself until his influence practically disappears. He is not even to choose the reading-books, and, indeed, there will be little left for him except to pass them round to his pupils, and perhaps to exercise some police regulation as to their use. The next logical step would be to declare the school a useless institution in regard to all studies, such as literature and history, that rest mainly upon books. Though Prof. Armstrong has not explicitly followed out his argument to this conclusion, readers of his article cannot fail to see the drift of his suggestions.

A criticism so ruthless, which brings an indictment

against a whole profession, and attacks the greater part of the educational machinery in which the capital of every civilised country has been sunk, would have to be supported by very weighty reasons. It will be worth while to examine closely those which Prof. Armstrong presents. But a serious difficulty arises at the outset, for it is impossible to make out with any certainty from the terms of the article what the writer really means by the "plain reading" which he recommends. There are, I take it, four conceivable interpretations of the phrase. It may be meant that we should prefer (1) matter to style, or (2) informative to imaginative literature, or (3) books about *things*, in the narrower sense, to books about people, or (4) books fancied by the pupils to those chosen for them according to any standard. Which of these, if any, is the sense in which Prof. Armstrong uses the words? The trouble is that, to judge from the expressions in his article, he means at once all and none of them. When we read his warnings against the seductions of "mere word-painting," and are told to "learn to think more of the stuff in it—of the subject-matter of the literature we prescribe," we take it to be the first of the possible meanings that is intended, but presently we have the safeguarding proviso: "Far be it from me to discourage either the study of words or the reading of classic literature." Then, when such works as Morris's "Earthly Paradise" are condemned, and "all the fairy-tales together, all the heathen myths," are unfavourably compared with "the great book of Nature," we naturally think that "plain reading" is opposed to imaginative literature; but presently we find Hugh Miller's praise of the Iliad and the Odyssey as children's books quoted with approval. Again, the reiterated suggestion that school reading should be mostly concerned with geology and kindred sciences would seem hostile to any preoccupation with history, biography, or fiction; yet "Treasure Island" is recommended on the ground that it is "just full of human nature." Lastly, there are numerous injunctions to withdraw all control over the reading of young people, either at school or at home, and to leave the choice entirely to chance or the random fancy of the readers. "Browse on books, early and late; almost any books, all the books that you can get hold of." But we are also told that "the number of readable books giving sound and accurate information is very small." Presumably the boys and girls are to discover this small number laboriously for themselves. "If it be in them, in time they will learn to separate wheat from chaff." Yet it is not even clear whether the teacher is to have any part in the matter or not. On the one hand, it is laid down that "the stream of English literature should be allowed to flow pure and undefiled through the youthful mind." But "what is read should be criticised—the authority should always be asked for." Is the teacher to listen submissively to the criticisms of the pupils, or will he be allowed occasionally to put in a word of his own? It would certainly seem that Prof. Armstrong does not know his own mind, or at least that he has not the courage of his convictions in any one of the directions that he is inclined to pursue.

Let us, however, put on one side all the inconsistencies of the article, real or apparent, and try to get at the real inwardness of the writer's attitude. It is pretty clear, despite his protests, that the world of reality to which alone Prof. Armstrong would be genuinely interested in introducing young people is the inorganic world. He would allow this interest to bulk by far the most largely *in every school curriculum*, not only filling up the hours of practical work, but absorbing most, if not time assigned to the study of books. He is in the distinctively human interest. He sees little value in any pictures of the past that are cerned with material conditions as reproduce methods of physical science. To him, striking such as Warren Hastings and Clive and Fre Great, who represent great historical movements "bores," and he cannot imagine how an accou could have any attraction for young people. He has not read Macaulay's "Essay on Frederick t recently, or he could not have forgotten how sparkling a narrative it is.

Imaginative works are rated no more highly speare's plays apparently deserve no serious st enough to see one occasionally represented on This is not the place to fight the battle of the over again. No one can deny the value of th given to the direct study of nature in our school Armstrong and other thinkers of the same type, there is any question of the apportionment of effort in a comprehensive school course, the extremists can count for very little.

More striking than Prof. Armstrong's scie is his attitude towards teachers and schools, only be described as educational nihilism. It i that he has a poor opinion of them as they are a his scheme of things would really leave no wo for them under any conceivable conditions. He does not believe in class teaching at all. Boys are, it would seem, to educate themselves for part, and what they cannot do alone is to be some tutorial system which would involve the attention of a teacher to a single pupil, or at group of two or three. Surely this is idealism It is as easy as it is profitless to frame utc bear no relation to necessary economic condi education is to be a possession of the people at al must be taught in numbers, and any suggestio improvement of schools must reckon with that fact. The fallacy that runs through the whole Armstrong's argument lies in the assumption average boy or girl is a serious and eager stu will not only study diligently such books as suited to their stage of development, but w through any number of books by way of experi they reach the select few that satisfy their wa all very well to say, "It matters little what i long as the habit of reading seriously and ac be gained." How is this habit to be gained? I Armstrong know so little of children as to ima they can be trusted to acquire it for themselve even the slightest guidance from more experience Even if all young people had ready access t stocked library, the greater number would ra it at all except under compulsion, and of those venture inside, the majority would be satisfied most frivolous books they could find, and wc develop a taste for any other class of literatu through some outside influence. The chance of certain reading for school purposes is in most only available means of raising the natural t higher level. It is, of course, desirable that the should savour as little as possible of constraint, every effort should be made to lead young p higher realms of culture by the pleasantest pat is put before them must not be so far beyond th taste and capacity as to repel them, but if ther

d progress, it should always be of a higher the majority would have chosen for them- the article suggesting certain courses of school ich called forth Prof. Armstrong's pronounce- was the object kept in view, and it is a matter ate whether the proposed scheme should be extended. But it is too late in the day to educational anarchy in regard to the literary f the ages which it is the privilege of each to open up to their successors. The time- nd plausible notion of turning children into a browse at their own sweet will, which Prof. seeks to recommend anew, would prove in nineteen cases out of twenty. A large individual choice is not incompatible with the f some persuasive and even authoritative nd teachers will have little hesitation in making the opportunities which their position affords

JAMES OLIPHANT.

o thank the editors of THE SCHOOL WORLD for e proof of the above letter. I fear that even nt has scarcely learnt to read, judging from tation he gives to many of my sentences; he ly failed to appreciate the object of my article. ren us advice as to the best authors for school ventured to suggest that his list was a dreary one from the schoolboy's point of view—that ing at too high an object and going too slowly primary need was instruction in the simple art not the dull dissection of books which grown- ased to regard as classics. I insisted also on f an effective correlation of literary with prac- . His answer is to call me a pessimist. ism is "ruthless" and "brings an indictment whole profession." Is it not then an acknow- that we do not know how to teach English? association for the promotion of English teach- stablished recently—subscription 5s. less a re- those who come in by a side entry? Surely, a ough confession of impotence, this! "Strange seems, English literature is a new subject in ools. We are largely in the stage of experi- quote from one of the essays written for *The*

y criticism "attacks the greater part of the machinery in which the capital of every untry has been sunk." Has not the introduc- ectricity led to the entire setting aside of in which vast sums had been sunk? Will not a of a similar policy be a necessary consequence oduction of Common Sense into education? I y mildly suggested—in my Mosely report—that e well if we scrapped the whole wretched how and started afresh. Are we to scrap only in the interests of shareholders? Surely, s are of some consequence!

g must be done to curb the so-called teacher, e pupil may have leisure and opportunity to c Dean of Durham commences a charming Education as an Instrument for Deadening the ellect," in the February number of the *Parent's* quoting the words of Comenius (1627): "May star and rudder of our Didactic be this: to a rule after which *Teachers may teach less rs may learn more!*" And it is noteworthy lean also writes—"Let us teach languages in atural ways."

If the boy at school were heard, would he not often exclaim to the teacher—"Do be quiet, don't talk so much—don't ask such silly questions and give such feeble explanations—do let me read quietly and do something myself—give me time to think for myself—don't ask me to do something fresh every half hour or so"? The class of teacher Mr. Oliphant represents forget that the outlook of men from thirty to fifty years old is not that of boys of ten to fifteen years. I implied that Warren Hastings and Clive and Frederick the Great were bores to most boys, who care nothing for politics. What if Macaulay's essay on Frederick the Great be racy and sparkling (not "educative in the highest sense of the term," be it noted)—to grown-up men who know something of the world? "Deeds that won the Empire" and "Bail Up" are far more likely to be regarded as racy and sparkling by boys. While on Macaulay, let me suggest that Mr. Oliphant is perhaps not familiar with his essay on Lord Bacon—I would ask him to read it and to note how poor, in Macaulay's opinion, have been the services rendered by the humanists in comparison with those of the exponents of the Baconian philosophy of utilitarianism.

"Does Prof. Armstrong know so little of children," &c.—perhaps he knows more than Mr. Oliphant supposes. His opinion certainly is that their intelligence is beyond that of most teachers and that their faults are to a far less extent congenital than a consequence of the inane teaching to which they are subjected at school. Thring is worth consulting on this point. The thing the average teacher understands least is the boy—the only person who has less understanding of him is the examiner. This could not be more clearly shown than it is in the English paper set at the recent Matriculation Examination of the University of London—a more damnable production cannot be imagined (cf. Ruskin, "Sesame and Lilies," par. 18)—suitable perhaps for the D.Lit. but not for children of the age of sixteen or thereabouts. No better illustration could be given how not to teach English in school.

The literary teachers have had possession of the schools these generations past and to what state have they brought us? To the verge of intellectual bankruptcy! They have disregarded the new knowledge entirely and have not made the attempt even to teach their pupils to read—instead they have revelled in pedantic verbalism. I am optimist enough to believe that at no distant date the nation will see to it that the work of education be entrusted to men with a more practical outlook—to men who can lead their pupils to know both themselves and the world, in accordance with the advice tendered by that prince of humanists, Matthew Arnold, some thirty years ago.

As to the use of books, it were well if we could pay heed to the "Complaint of Books" put forward by Bishop de Bury somewhere about 1300: "O idle fishermen, using only the nets of others, which when torn it is all ye can do to clumsily repair but can net no new ones of your own! ye enter on the labours of others, ye repeat the lessons of others, ye mouth with theatric effort the superficially repeated wisdom of others. As the silly parrot imitates the words he has heard, so such men are mere reciters of all but authors of nothing, imitating Balaam's ass, which, though senseless of itself, yet became eloquent of speech and the teacher of its master though a prophet. Recover yourselves O poor in Christ and studiously regard us books, without which ye can never be properly shod in the preparation of the Gospel of Peace . . . books implore of you: make your young men, who though ignorant are apt of intellect, apply themselves to study. . . ."

HENRY E. ARMSTRONG.

Catechetical Teaching.

The welcome appearance of Sir Oliver Lodge's new Catechism raises the question whether a catechism is the most effective method of teaching anything to the young. I suppose that years ago all sorts of useful knowledge in science, geography, history, and so on, were taught by catechisms, such as Mangnall's "Questions." And that since then even greater emphasis has been put on the method of teaching by question and answer. A book on arithmetic consists almost entirely of questions; but we generally keep the answers *confidential until our pupils have made some serious struggle with the questions for themselves.* Is not a question a stimulus to thought, an answer a sedative?

Again, many of us use questions in our laboratory teaching of experimental science. "What gases, if any, are produced when (*a*) zinc dust and (*b*) bleaching powder are separately heated in test-tubes?" If, after experimenting, our pupils persistently answer "(*a*) hydrogen and (*b*) oxygen," we turn again to our test-tubes, and find results surprising and instructive, which would certainly have escaped us if we had taught *ex cathedra* or from a book.

Hence one cannot help wondering whether it might not be useful to suppress the answers to questions in other fields, especially when it is alleged that the answers to be sought depend ultimately upon evidence and upon experience. Indeed, one may even have a vision of the passive resister and the high churchman both agreeing to public education "on the basis of the catechism," the questions only to be supplied to the child. We are none the less grateful to Sir Oliver Lodge for his suggestive Key for the use of parents and teachers.

Hugh Richardson.

Bootham School, York.

Having seen Mr. Richardson's letter, through the courtesy of the editors, I should like to add that in my judgment a catechism should in the first instance be only in the hands of the teacher, and that the child should be given an opportunity of understanding and considering any serious question before an answer is supplied by authority. Their minds should be skilfully made ready to welcome each answer when it is given; but never should they be expected to construct for themselves what the teacher may consider to be the correct answer. Their attention should be concentrated on the real issue, not on what someone else may happen to be thinking about that issue. The spontaneous ideas of unsophisticated children are often interesting, and are certainly helpful to a teacher.

As to the amount of time and opportunity that can wisely be given to any one question, that must depend on its nature. Some can be answered in the laboratory or the garden, some with the aid of books of reference, and some (and perhaps those are the most educative) by the unaided action of the child's mind on its own store of experience. For instance, such a question as "What is the distinctive character of mankind?" or "In what ways does man differ from other animals?" could be well best answered, and answers of this kind are best obtained in a lively cross-fire manner. It is usually only questions of empirical fact, such as occur in subjects such as history and geography and language, that must be looked up in books.

But there are fundamental questions in philosophy and religion, such as children sometimes spontaneously ask or can easily be interested in, to which answers must ultimately be given from the point of view of a experience; it being understood that we are our way in these matters, and that adults do to infallibility when they help children towards conceive to be the truth. It is such questions which a carefully drafted set of formal a gradually and judiciously be administered. In such answers may legitimately be learned by when the full meaning can only subsequently the budding intelligence; though it is clear t method must be employed with caution. Que with at length should usually have some intrin and importance of their own, or else should b outcome of a lesson: applying in detail, and cases, that which has been given in general pr

It would be wearisome, however, to adhere to the method of instruction by question; some should be instruction by lecture also, but never spirit of inquisitiveness is alive.

Olive

University of Birmingham.

Epidemics in Day Schools.

A question on which light is urgently nee of epidemics of the milder diseases. Until one face to face with an outbreak, one cannot hopelessly authorities differ. A single instance of a matter which came prominently under t notice some years ago. There happened to be town a somewhat extensive epidemic of m the question of quarantine became serious. doctors were consulted as to the extent of tim for a boy to be isolated after the first sympto themselves. Each one differed entirely in his actually demanded six weeks as the minim another stated that three weeks was quite suffic were mild cases. In his perplexity, the writ course to what he considered the best books on He consulted three. No. 1 said that in a n mild might return to school on the fifteenth direction; No. 2 regarded three weeks as th time; No. 3 was quite positive that a necessary. What was a worried headmaster to much pondering the wisest course appeared to the whole responsibility upon the doctors, a them a copy of rules to state that the patient m to school without danger of infecting other b that every doctor refused to sign the docum ing that it was impossible to state exactly whe no further danger of infection. Obviously, th whole matter had to be left to the arbitrament and to the discretion of the individual parent.

[illegible] medical science [illegible] which one [illegible] already [illegible] house where [illegible] exists. No [illegible] asserts that it is [illegible] some disease [illegible] [illegible] of ringworm [illegible] Nevertheless [illegible] [illegible] has [illegible] positive [illegible] [illegible] [illegible] No [illegible] confessi [illegible] German [illegible] allowi [illegible] [illegible] at a [illegible] [illegible] [illegible]

d be decided without a shadow of doubt is
oy, not himself ill, can carry the germs from
ed to those at present immune. Practically
ity asserts that he can, and on *a priori* evidence
ould be certain. Yet it seems that there is
to doubt whether the chance is not so slight
isually be neglected.

ing of a day school becomes so quickly and
disorganised by an epidemic, that if it
stablished that only the actually ill pupils
kept away considerable relief would be

It is no use relying on isolation in a
se. In the homes from which most day
facilities for such treatment are practically
. Consequently, one of two courses must be
ither all the children from an infected house
igorously excluded so long as there is the
ection, or all should be allowed to come except
lly ill. The former course is (theoretically)
99 per cent. of principals of schools. The
retically " is used advisedly, for one becomes
al as to whether it is always carried out.
ese diseases have now become so mild that
is not called in at all, and when he is called
hief is done. The germs are already in the
infection is present. May it not be reason-
whether it is not lost labour to exclude the
ils? Certainly in the experience of one head-
course has been adopted with such success
apidly becoming very sceptical as to the utility
entional methods. A little common sense on
seems to be urgently needed. If the " well "
carry the infection, exactly what infection does
himself carry? How many children who are
m schools are also excluded from churches or
of worship? They cannot possibly be con-
e house. Over and over again, children
ncluded from associating with their fellow-
hool have been seen playing with them in the
itting next to them in churches. Are we not
ent system straining at a gnat and swallow-
roves of camels?

y of the open window in the schools, the
eaching and teaching the gospel of fresh air,
of far higher importance than the meticulous
usually insisted upon by authority. Apparently
profession acquiesce in the continued necessity
eases as measles and mumps and whooping-
the same time, they preach the need to guard
ction from them. What often happens? A
lly guarded against these diseases in his child-
to a big boarding school, where he promptly
n one after the other, with a result that his
iously hindered and the disease is rendered far
than it would have been in early youth.
ne is forced to think that if the money spent
solation hospitals and school sanatoria were
culcating the elementary principles of sanita-
sh air far more good would be done, and the
nped out in time.

this is a digression. The somewhat heretical
forward here are advanced with fear and
the hope that they may perhaps elicit sensible
tions from persons of experience and authority.
n is a most vexatious one; and the present
ld seem to entail a maximum of vexation with
of efficiency. HEADMASTER.

Dr. Rouse's "First Greek Course."

I HAVE to thank your critic for his corrections of certain oversights in my "First Greek Course." The rule for comparison, however, which he desires to alter (p. 10), is correct for *πικρός* and *πυκνός* as for *μικρός*, the syllable (not the vowel) being "long" or heavy in all these. It might be more clearly put, however. I do not think the rule as to relations of space (p. 19) implies that the cases can always be used alone in these senses; a similar rule is given for Latin, where prepositions generally have to be used, and I assume a knowledge of Latin. The accent of contracted adjectives is not as he states, so far as I am aware (see Jelf's "Greek Grammar," i., p. 127, for example). *ἀνώγεων* does no harm in a conspectus as complement to *κάλως*. *λελύκω*, *λελύκοιμι*, or rather corresponding forms in other perfect stems, are sometimes wanted. I should be glad of some clear evidence to decide between neut. *ἑστώς ἑστός*, *βεβώς *βεβός*; what evidence I know is not to my mind decisive. *γεγώς* is strong in favour of *βεβώς* but the quantity in *ἑστώς* may make a difference. The balance of probability is, I think, in favour of what I have given.

W. H. D. ROUSE.

To take Dr. Rouse's points *seriatim*. A short vowel before a mute followed by a liquid or nasal does not make a long syllable; the first syllable of *μικρός* is long because the *ι* is long, and similarly the first syllables of *πικρός* and *πυκνός* are short because the vowels are short. The rule for the formation of comparatives requires a slight enlargement, therefore, to cover these words. I still think the rule about the accusative (p. 23, not p. 19) is likely to mislead; the words are, "generally speaking, motion towards is expressed by the accusative." A knowledge of Latin might lead a boy to use the accusative with towns and small islands, and to insert prepositions with other words. The author's meaning seems to be that when motion to is expressed, the preposition is used with the accusative. For the accent of contracted adjectives I must refer to Kühner-Blass, I., 1, § 115, 3 (*a*), where the rule is given, "nach der bestimmten Lehre der alten Grammatiker." Dr. Rouse himself prints *νώ*, *ὀστώ*; then why not *ἀπλώ*? *ἀνώγεων* may do no harm, but what good does it do when neither it nor any word like it occurs? Is it not part of the useless lumber which it is desirable to jettison? The point about *λελύκω* and *λελύκοιμι* is that such forms are rare, the usual forms of the perfect subjunctive and opt. active being of the type *λελυκὼς ὦ*, *εἴην* and these should be given in preference to the others. The best MSS. are said to give the form *ἑστός*; see Kühner-Blass, I., 2, § 317, 3.

THE REVIEWER.

The Metric System.

MR. WYKE BAYLISS'S article in the March number of THE SCHOOL WORLD came most opportunely just before the Bill for the enforcement of metric units was introduced. The difficulty of teaching the metric terminology to a class was not so great in my experience as he seems to find it. There is hardly anything which a boy cannot forget in the holidays, but this, at all events, comes back to him in a very few minutes. Now that so much geometrical work is done with a graduated ruler, he is pretty sure to remember the relations of deci-, centi-, and millimetre. The estimation of lengths of common objects at sight will increase his range. If his teacher gives him plenty of practice *viva voce* in all manner of re-

fractions. This drill will soon fix the nomenclature in his head, and will also establish the view that it is the figures that are moved, not the decimal point. By "plenty of practice" I mean five or ten minutes every arithmetic lesson for some weeks.

We shall not know how easy and natural the metric system is until we have improved our teaching of decimals. May I here protest against Mr. Bayliss's phrase (p. 86, seventh line from foot) "introduced to decimals," when he means to decimal fractions?

I was delighted to find last year a school in the far west of Ireland where decimal fractions were taught as an extension of decimal integers, and in consequence their use gave no trouble, to a class still ignorant of vulgar fractions. They had fully grasped the meaning of "place value," and worked their multiplications as Mr. Bayliss does, integral and fractional alike. Division presents somewhat more difficulty, even to those so taught. If to place the figures of the quotient without modifying the position of those in the divisor and dividend is not attainable by a dull class, the best way, I believe, is to shift the divisor so that its highest digit is in the units place, shifting the dividend, of course, to the same extent.

But as soon as the ideas of area and volume can be treated—and with the help of the model litre Mr. Bayliss describes (p. 88) that may be quite early—so soon do the real merits of the metric system appear. Get a boy who has been hampered and confused by our British no-system of units to measure a rectangular vessel in metric units, and calculate the volume it contains in litres and the weight of such a volume of water in kilograms, and he will need no farther exhibition of the merits of the metric system to make him an ardent advocate for its adoption.

The suggestion that even our monetary system can be brought under the decimal spell is at least as old as de Morgan. More than thirty years' experience of his method established my conviction that the saving for all considerable calculations is very great—an idea which is, I believe, taking hold on the mercantile world. May I end with an expression of horror at the suggestion (p. 87) that "every type of question in which approximation is possible" should be illustrated by examples? There are few things more dangerous to sound and profitable arithmetical teaching than an excess of worked examples—but this, no doubt, Mr. Bayliss knows as well as I.

FRANK E. MARSHALL.

WHILST gratified by Mr. Marshall's friendly criticism, and pleased that he has so few faults to find, I should like to point out that in some places he has misunderstood my meaning. The *sine qua non* "drill" is just what I contended was necessary to fix the nomenclature. Nevertheless I have known even men, accustomed to reckon in metres and centimetres, temporarily "floored" by a question stated in decimetres or dekametres; and as to boys' —there is perhaps no commoner question on their lips than "How many centimetres are there in a decimetre?" unless it be "How many cubic centimetres are there in a litre?"

Again, technically Mr. Marshall is right in speaking of "decimal fractions"; practically the additional word "fractions" only confuses a boy.

Once more, my suggestion was that children, having made counters representing £ s. d., and pounds, florins, and mils, should be taught to make exchanges from the one system to the other. No doubt the idea might be traced to de Morgan; but has the experiment ever been *tried?*

Lastly, Mr. Marshall's "horror" at my sug gestion is only excelled by my own at disco my words are capable of such an interpret course I meant that, at every stage of their should be set questions which do not, as they out," so that they may be driven to use appr But I gather that Mr. Marshall thinks suc should be called "exercises" instead of "exa not this somewhat hypercritical? I have just a dozen text-books by different authors. In ni the questions are all called "examples"; i are headed "calculations"; in two only are t "exercises." If the above suggestion is th that arouses horror, I shall indeed believe that system is on the verge of victory.

Greek for Beginners.

PROF. CONWAY'S letter in your last issue s to create a false impression as to the teachin to beginners at the City of London School Abbott. Greek was begun in the fourth fo the fourth and fifth Euripides, Plato (the Ap Lucian were read. A boy would have been lea for eighteen months or two years before he sixth, and it was only then that he began Th whom he read one book straight through ever did not read selections. He could not, I th be called a beginner at this stage.

The Balance Hydrometer.

IN the March number of THE SCHOOL WORLD Bucknell describes a method of finding the d body by means of a hydrometer without using

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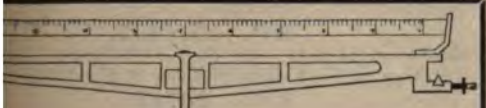

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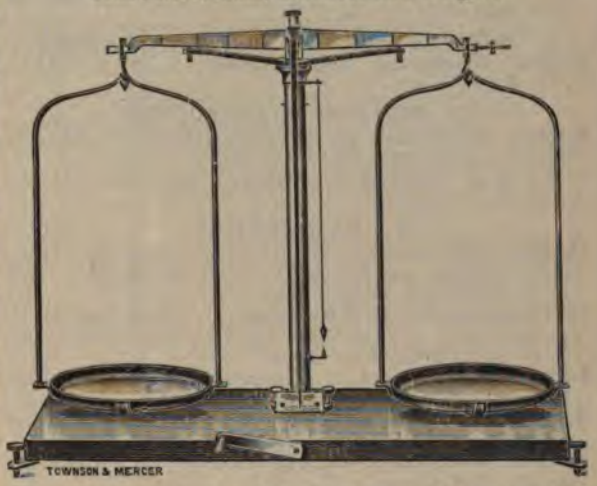

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The School World

A Monthly Magazine of Educational Work and Progress.

MAY, 1907. SIXPENCE.

IMATIONS AND CONTRACTED THODS IN ARITHMETIC.

By F. E. ROBINSON, M.A.
St. Paul's School, London.

NG the last few years the teaching of nentary mathematics has been so thoghly renovated that but little of the tructure remains. Euclid has gone: ained by actual measurement of draw- to scale are treated as of an import- to those proved by formal demon- The manipulation of trigonometrical as given place to more direct calcula- lving much numerical work. Graphs umerical evaluation of formulæ have irely displaced the algebra which con- elf chiefly with symbols. Whether ges are for better or for worse, they y demand as an indispensable adjunct ty in arithmetical calculation. No one o perceive that the old arithmetical re not adapted to these new purposes. equent dependence on vulgar fractions, the assurance that the numbers have ngly chosen so as to cancel out beau- he end, the long division sums which ish off with no remainder, the con- struggles after absolute accuracy long figures employed have any practical entirely unfit the pupil to work with ot chosen with a view to a neat answer, with quantities subject to errors of n, or to obtain within a reasonable time a result correct only so far as is useful.

the new requirements certain modes ion, usually called contracted methods, dragged from an obscurity in which long languished as curious specimens ed ingenuity. Examiners have placed efront of their demands a knowledge ethods, and regularly complain in their t such is not forthcoming. Committees have investigated the processes, and mmended their immediate adoption. rs of text-books have responded by onsiderable space to the exposition of ls, and what was once thought to be sufficiently treated in a disconnected section, probably marked for omission, is now become one of the chief attractions of an up-to-date book. Yet it seems very doubtful whether, on the part of the teachers, there is any real enthusiasm for, or belief in, the utility of these much-belauded improvements; and the boys certainly show little inclination to apply them. Writing to the *Mathematical Gazette* in May, 1906, with respect to these methods, a mathematical teacher says that, though he taught these rules for many years with enthusiasm, he never used them himself, or induced any boy to use them except for the purpose of gaining marks. He came to the conclusion that they were but toys, and he cut them out of the curriculum. Many teachers hold similar views, and boys usually regard contracted methods merely as an additional item to be got up for examination purposes. So long as teachers have so little faith in the new methods that they do not personally make any practical use of them, and so long as boys find in them such difficulties that they cannot put them to any practical use, no real progress is likely to be made. We will therefore, before considering them in detail, discuss whether such practical use is a possibility.

The words "contracted" and "shortened" convey to the mind a very misleading notion as to the real object aimed at by the employment of the new methods: their great merit, in our opinion, is that the work is arranged so as to enable the operator to reject at any stage figures which are useless for the purpose required. If there are no such figures, this fact must not be attributed to a failure of the method. It is a frequent source of disappointment to find that, after employing a method specially learnt to save labour, the work is no less than it would have been by another process with which we are more familiar. As this is the gist of most of the complaints that are made as to the unsuitability of these new methods for practical use, we will examine what foundation there is for such opinions. In the old method, which most people use ordinarily, we multiply first by the figure of lowest place-value, each successive partial product being shifted one place to the *left*. Thus it is clear that a person who habitu-

ally multiplies by the old method, which was established when no such things as contractions were contemplated, must make a considerable mental exertion, and proceed slowly and warily when he wishes to contract. The whole process is unfamiliar to him: he is obliged to stop and go through mental calculations as to the place-value of the figures, or to ransack his memory to recall rules, which are laid down for beginners in the earliest stages.

It is not surprising that boys who try to use contracted methods in this way come to the conclusion that the "short" method is longer than the "long" one, and that it is responsible for such a multitude of blunders that they dare not employ it in practice. The methods of contraction are founded on the supposition that the operator usually multiplies first by the figure of *highest,* instead of the lowest, place-value. Whatever may be the merits or demerits of such methods to persons who fulfil the initial conditions, we can well believe that they are of no use to persons for whom they were never intended. If it can be shown that to the beginner this style of multiplication presents difficulties, which are inherent to the method and are not present in the other style; if it can be established that boys, who are taught this method *ab initio,* and continue to use it habitually, are slower and more inaccurate than those who proceed on the good old plan; then we will willingly concede that these contracted methods are not worth the time wasted on their acquirement. Otherwise the case stands thus: if no contraction be possible, the boy performs an ordinary multiplication; if contraction be possible, he does essentially the same, omitting those figures which he can see will be of no use.

The loose way in which the word approximately is frequently used is responsible for much of the distrust of the actual use of the methods. To a boy who has been accustomed to obtain answers correct to the minutest fraction, a process where any figures are ignored seems barely entitled to his respect; consequently he is either ready to impute to the process all the errors which he may himself make, or he takes the opposite view, and imagines that if only his actual working is correct he ought to get a correct answer, despite the errors introduced into the process by indiscriminate contraction. These erroneous notions are due to his failing to observe in what way the figures which are admittedly approximate affect the result obtained.

It should be clearly understood that the phrase "approximately correct" has a definite meaning, and it should not be used to palliate errors. It implies absolute accuracy to one figure more than is written down. If, for example, a number is given to be 32·34, it is to be understood that this differs from the true value by a quantity less than 0·005, *i.e.*, that the true value lies between *32·335 and 32·345.* Similarly, the value of *345,637 is 345,600* correct to four significant figures, since it differs from the tru less than 50. Thus for a given num nificant figures there is only one nun is approximately correct, and that is t which is nearer to the true value than number expressed by the same numl nificant figures. All quantities whic result of direct measurement are apr correct in this sense. Thus, if we are the diameter of a sphere is 11·3 implied that the true length lies betwee and 11·35 cm.

If n such numbers, each correc decimal places, be added together, in the result is less than $\pm 0{\cdot}00005$ if $n=4$, the last figure may be in e In working with four-figure logarith are only approximately correct to f of decimals, such errors are frequen avoidable, and we cannot therefore r fourth significant figure of a resul from them. In such cases, unless data are available, there is nothi done but to recognise that the resu to slight error the limits of which may But where the approximations are ma operator, the error can be eliminated ing in the working two more figures required in the result. If $n=20$, the carded figure might be in error by 1 would not affect the result unless the figure were 4 or 5. Thus, if two ex are retained, we are practically safe error within the desired limits.

In subtracting two numbers, each four places, the possible error is $\pm 0{\cdot}000($ $\pm 0{\cdot}0001$. To avoid error the same must be adopted as in the case of a

When two numbers which are giv are to be multiplied together so as t answer approximately correct to only number of figures, the same precaut the case of addition must be again ado partial products are formed approximat to two more figures than are requir in the result, so that, when these partia are added, the result is free from er the prescribed limits. In order that products may be approximately correc proximate carrying figure from the f not included in the product must be add from 2×7 $(=14)$ we would carry 1, 2×8 $(=16)$ we would carry 2. These are common to all methods of contrac plication, but the details of arrangen widely.

The object of the process is, of avoid writing down figures which ar quired; but we should not attempt t this object by a violent perversion of th method. Multiplication of integers, of and the contracted form should differ i ment as little as possible. In the exam below the arrangement is based on tw

(1) The unit's figure of the multiplie

ler the last figure of the multiplic-

right-hand figure of each partial pro- be placed under that figure of the o the use of which it is due. In the form the only change introduced is gard the last figure to be retained as last figure, and we omit all figures tial products which fall to the right

	Decimals.	*Contracted Form.*
7	34·567	34·56|7
5	24·35	24 |·35
	691·34	691·34
	138·268	138·27
	10·370 1	10·37
5	1·728 35	1·73
5	841·706 45	842·

ooks exact rules are given for placing products, but these are intended only ers. The pupil should be able to con- work at any stage when he sees that to obtain figures which will be useless nless he can do this readily and with- ite preparations, he will not find the ontraction of much practical use.

on, too, the same principles are em- he contraction is effected by cutting ure from the divisor instead of, as ging down a figure from the dividend. r of figures in the divisor thus dimin- one for every figure obtained in the The process can safely be applied at in which the number of figures still d in the quotient is two less than the figures in the divisor. If at the be- re are more figures in the divisor than d in the quotient, it is only necessary the divisor one more than we require otient, and the divisor should be at led. As an example, we will consider ng:

orts for 1906 (*to the end of October*) *d at* £497,645,568, *which is an in-* £38,581,739 *over the value for* 1905: *crease per cent. to two decimal places.*

5 = £497,645,568
− £38,581,739
= £459,063,829

$$\text{n-} = \frac{38581739}{4590638{\cdot}29} = 8{\cdot}40$$

	8 404
45906|38)385817|39	
	367250
	18567
	18362
	250

to apply these methods to questions British money, it is necessary to ex- noney as the decimal of a pound. To swer correct to the nearest farthing ient to obtain it in pounds correct to nal places, so that five decimal places rally be retained in the working. If, he given amount is to be divided by greater than unity, or is to be multi- proper fraction, we need only retain nal places, *for the error in the* result will be less than that in the original approximation. Such exceptional cases occur in long division and in simple interest. But even five places are not sufficient to retain in the original decimal if in the course of the work there happens to be a multiplication by any number greater than 10, unless the operation is to be followed by a subsequent division by a number larger than that multiplier.

In all calculations involving decimals it is of the utmost importance that the results of each operation should be checked by a rough approximation to the answer. If this be done before we start upon the actual work, it is nearly impossible to make a mistake in the position of the decimal point, for a comparison of the first partial product or the first figure of the quotient with the rough approximation will at once disclose any error which may have been made in the initial arrangements. The numbers chosen for the rough approximation should be so simple as to reduce the chances of error in it to a minimum.

As an instance of the practical use of the rules for contraction, we may point out that data which are the results of actual measurement are subject to errors of observation, so that any calculation based on such quantities must also be liable to error. In these cases it is not only permissible, but logically necessary, to use contracted processes, for it is obviously foolish to pretend to greater accuracy than the imperfection of the data renders possible.

If a is a quantity subject to a small error x, its true value must lie between $a+x$ and $a-x$. If b is another quantity subject to a small error y, the value of the product ab will lie between $(a+x)\ (b+y)$ and $(a-x)\ (b-y)$.

Thus, the error in the product

$$= (a \pm x)(b \pm y) - ab = \pm(bx + ay) \text{ nearly.}$$

If the sides of a rectangle are given to be 97 m. and 64 m. to the nearest metre respectively, the possible error in the area

$$= \pm(64 \times 0{\cdot}5 + 97 \times 0{\cdot}5) \text{ sq. m.} = \pm 80 \text{ sq. m. nearly.}$$

By multiplying 97 by 64 we obtain 6,208 square metres for the area; but since this is subject to an error of ±80 sq. m., it is clear that all we can truly say is that the actual area lies between 6,288 sq. m. and 6,128 sq. m.

The error per cent. in the product ab

$$= \pm\frac{(bx+ay)100}{ab} = \pm\left(\frac{x}{a}+\frac{y}{b}\right)100.$$

The true value of the quotient the arithmetical value of which is a/b must lie between $\frac{a+x}{b-y}$ and $\frac{a-x}{b+y}$

Hence the error in the quotient a/b

$$= \frac{a \pm x}{b \mp y} - \frac{a}{b} = \pm\frac{bx+ay}{b^2} \text{ nearly.}$$

The error per cent. in the quotient

$$= \pm\frac{bx+ay}{b^2} \times \frac{100b}{a} = \pm\left(\frac{x}{a}+\frac{y}{b}\right)100.$$

These results can be extended and combined,

thus, if a, b, c, d be subject to errors α, β, γ, δ respectively, the error per cent. in ab/cd is

$$\pm 100\left(\frac{\alpha}{a}+\frac{\beta}{b}+\frac{\gamma}{c}+\frac{\delta}{d}\right).$$

We have alluded to the errors introduced into calculations by the use of four-figure logarithms; but as these errors are frequently less than those which are independent of the mode of calculation employed, logarithms are still of great utility when applied to such numbers as we have been considering. Thus, if the diameter of a sphere is measured to be 11·43 cm., its volume, calculated by multiplication, is found to be 781·9 c.cm.; and by using four-figure logarithms we obtain 781·4 c.cm. for the result; but the error in the volume due to imperfection of the data is ±1·026 c.cm.; hence the discrepancy in the results given above is of no practical importance. But when the data are not imperfect and when accuracy to more than three figures is required, it will be clear that four-figure logarithms must not be used.

The theorem that, when $n+1$ figures of a square root have been found by the ordinary process, n more figures can be found by division is proved in text-books on algebra, but its application is useful chiefly in arithmetic. The following example will sufficiently illustrate the method, and will also show the importance of expressing all surd quantities with rational denominators before commencing the arithmetical calculation.

Find, correct to 10 *figures, the value of* $\frac{1}{\sqrt{5}+1}$.

2· 2 3 6 0 6 7 9 7 7 5
5·
4
42 100
84
43 1000
1329
4460 27100
26706
44720 0394000
2983230
447212 3507040
31304884
437150
402489
34 05
31305
3300
3131
220
224

$$\frac{1}{\sqrt{5}+1}=\frac{\sqrt{5}-1}{(\sqrt{5})^2-1}=\frac{\sqrt{5}-1}{4}$$

$$=\tfrac{1}{4}\times 1{\cdot}2360679775$$
$$=\ 0{\cdot}3090169944$$

The calculation of the value of an infinite convergent series correct to a certain number of decimal places affords a good example of the true meaning of approximation. Orderly arrangement is absolutely necessary; only thus can the pupil see exactly how each term affects the result, and why certain terms may be neglected. The following specimen of such a calculation will illustrate the point.

Find, correct to 10 *decimal places, the value of* π, *given that*

$$\frac{\pi}{4}=4\{\tfrac{1}{5}-\tfrac{1}{3}(\tfrac{1}{5})^3+\tfrac{1}{5}(\tfrac{1}{5})^5-\ldots\}-\{\tfrac{1}{239}-\tfrac{1}{3}(\tfrac{1}{239})^3+\ldots\}.$$

Denote the first series by A and the second by B, so that $\frac{\pi}{4}=4A-B$.

CALCULATION OF A.

Positive Terms.	*Negative Terms.*
$\frac{1}{5}=$ ·200000000000	
$\frac{1}{5}(\frac{1}{5})^3=$ ·000640000000	$\frac{1}{3}(\frac{1}{5})^3=$ ·002666666667
$\frac{1}{5}(\frac{1}{5})^5=$ ·000000512000	$\frac{1}{3}(\frac{1}{5})^7=$ ·000000731429
$\frac{1}{5}(\frac{1}{5})^9=$ ·000000000819	$\frac{1}{3}(\frac{1}{5})^{11}=$ ·000000001170
$\frac{1}{5}(\frac{1}{5})^{13}=$ ·000000000001	$\frac{1}{3}(\frac{1}{5})^{15}=$ ·000000000002
Sum = ·200640513251	Sum = ·002666732601
Neg. sum = ·002666732601	
$\therefore A=$ ·197973780650	

CALCULATION OF B.

Positive Terms.	*Negative Terms.*
$\frac{1}{239}=$ ·004184100418	
Neg. term = ·000000024416	$\frac{1}{3}(\frac{1}{239})^3=$ ·000000000024
$\therefore B=$ ·004184076002	

$$\frac{\pi}{4}=4A-B$$
$$=+\ 0{\cdot}7895822394\ 00$$
$$-\ 0{\cdot}0041840760\ 02$$
$$=\ 0{\cdot}7853981633\ 98$$
$$\therefore \pi=3{\cdot}1415926535\ 92$$

Thus $\pi=3{\cdot}1415926536$, correct to 10 places.

THE NATURAL HISTORY OF AN

How to Teach the New Subject c Cambridge Local Examinations

By Oswald H. Latter, M.A.
Charterhouse, Godalming.

I.

THE recent introduction of animal history into the junior and seni bridge Local examinations render able that candidates will desire to be pr this subject, and that some teachers wi of a few hints as to the general mode of p An inspection of the published syllabus sh considerable latitude is permitted; so teacher need feel constrained to make an to cover the entire ground there planned will the endeavour so to do be made articles.

It must be stated at the outset that the syllabus appears to deal solely with and habits, and although physiology and form a separate subject in the examinat it is absolutely impossible satisfactorily with structure in the total absence of k of function. The arrangement, disposit form of organs is, at the elementary stag ject devoid of interest and lacking in sti suggestion—dry bones in very truth. these bones live, the quickening breath tion must enter into the teaching. This is evidently felt by those who set the exa papers; for in a specimen paper before occur such purely physiological quest "What is the course of the blood thr body of a mammal? What purposes a

irculation of the blood?" and, "Describe use of the gills of a fish." I would, there- gin the course of teaching with one or sons mainly physiological in character; smuch as the chief energies of animals are towards the acquisition of food, these tory lessons might follow some such as the following:

ie general purpose of digestion, and the y of rendering possible the passage of om the cavities of the digestive organs blood.

he function of the blood as a carrier of d of oxygen, and, further, as a scavenger g the waste products, and conveying these ungs, skin, and kidneys for removal.

he connexion of bones with muscles, and hanical principles involved in their move-

ese introductory lessons the human body best object for reference, being already less familiar, and forming an easy start- t when the "general structure of a mam- taken in hand.

l be convenient for the purpose of these to group the animals comprised in the into two sets, viz., Invertebrates and Ver- . On the present occasion we will confine ntion to the former. Among these the ockroach, earthworm, moth or butterfly ified for junior candidates, while seniors addition, expected to have an acquaint- h the jelly-fish, sea anemone, mussel, crab, r-fish among marine forms, and (probably ice *or*) with hydra, the pond-mussel, cray- nat, a spider, among fresh-water and ter- animals.

ps it is hardly necessary to insist that ge of these "types" should be gained, as ossible, by direct observation of the living and as little as need be from books or ; but my excuse for dwelling on this cau- in the fact that it is a strong temptation the teacher and to the candidate to adopt ningly more rapid method of preparing examination. To any who may be thus , I would point out that mere book-know- of very small value, and will produce no nt result: it cannot arouse any real or interest, and it entirely fails to give the training aimed at by the introduction of ject into the examination in question. tedly the practical method is slow, but it ure. Nor must we overlook the impossi- conducting the whole of the observational on the captive living animal: in some in- this may be feasible, but in most it will sary to observe the animal in its natural e and unfettered.

s take as an example the common earth- If a few fully grown earthworms ught alive into the class-room, the will without difficulty be able to d describe the segmented and roughly al form of *the body, its tapering* anterior and posterior ends, the curious flattening of the hinder portion of the body, the deeper colour that is evident on the anterior segments, and the pres- ence of the thickened girdle at about one-third of the length from the anterior end. If the worm is placed on some soil in a box or pot, the alternate lengthening and contraction of successive regions of the body will be seen to take place as the animal crawls, and the value of the extremely finely-tapered head may become evident if the animal is so far obliging as to burrow into the soil. The effect of placing a worm on a hard polished surface, such as glass, at once makes it clear that a worm travels most easily over rough surfaces; and then, if the worm be held between the fingers at the level of the eye, the bristles by which a hold is obtained upon superficial irregu- larities spring into view, and a very fairly com- plete idea of the mode of locomotion has been ob- tained. But it is necessary also to see how the earthworm conducts itself when under natural con- ditions in or at the mouth of its burrow. On almost every lawn or other stretch of short grass, worms may be seen extended beyond their bur- rows during a warm, moist summer evening, or perhaps more conveniently in the early mornings of the autumn months; nor does it require much patience for anyone to observe how or on what the animal feeds, and the means which it adopts to protect and conceal the entry to the burrow. An attempt to seize one such worm will at once reveal the value of the peculiarly flattened tail as a sure anchor firmly pressed against the sides of the burrow, and, moreover, will impress the mind with the protective function of the slime, and with the great strength of the longitudinal muscles of the body wall. In the syllabus the internal ana- tomy is not mentioned, but in teaching some refer- ence to the locomotor muscles can hardly be avoided; and those candidates who proceed further with the subject will be able, in the light of this small piece of field work, readily to understand why the longitudinal are so very much thicker than the circular muscles—a small point neglected by all the text-books! Further observations on the economic importance of earthworms may be made by collecting and weighing a given number of worm-castings, and by counting the number of such castings on a given area. These notes should be supplemented by systematic records of the work accomplished by single specimens kept under as natural conditions as possible in large flower- pots filled with soil.

I have dealt at some length with this animal in order to emphasise what is true of the study of all animals, namely, the necessity of seeing the living animal in its natural home. Perhaps it may be asked: what is the best way of ensuring that pupils shall see for themselves? Are we to take them out into the field and there point out what can be seen, or are they to be told to go and look for themselves, and write out an account of what they discover? A combination of the suggested alternatives is probably the best. After as much as is possible has been done in the class-room, the

teacher should give out a set of questions that are to be answered from observations in the field. For example: "What are the worms doing on the surface of the earth? On what do they feed? How do they seize their food? Can they see, or hear? What do they do when alarmed? How are they able to escape from danger?" and so on. Then the class should, if possible, be taken to a suitable spot at a suitable time, and in the presence of the teacher jot down brief answers to the questions. These answers may subsequently be used as the foundation of a consecutive account of the habits and structure of the earthworm, written out as an essay or examination answer in the permanent note-book. I need hardly add that all such accounts should be illustrated by the pupil's own drawings.

In the same way, acquaintance with the external features and mode of life of the other invertebrate animals should be gained as far as possible from direct personal observation, guided by appropriate sets of questions. Snails are very tolerant of captivity; the rhythmic opening and closing of the mouth of the lung chamber can be seen without difficulty; if the animal be caused to crawl up a glass surface (*e.g.*, inside a lamp chimney), the undulatory contractions of the muscular foot become quite evident, and leave their impression upon the slime trail that marks the route followed. The mode of using the jaw and radula is more easily made out in water-snails than in the land species, for the former frequently browse upon the microscopic green weeds that will grow upon the glass sides of fresh-water aquaria; on such occasions the radula and jaw can be seen scraping against the glass. But for the hibernating habits, the formation of the epiphragm, the deposition of eggs, and the general behaviour under varying conditions of weather, the pupil must go out of doors.

The fresh-water aquarium is a necessity: it need not be very large or costly; in fact, for hydra a glass tumbler, for gnat larvæ a saucer, and for crayfish a large pie-dish will serve the purpose; and since these receptacles are easy of access, there should be no difficulty in providing a number commensurate with the number of pupils. On the other hand, the pond-mussel demands a larger vessel, with some two inches or more of mud and sand at the bottom, and sufficient depth of water completely to cover the animal when vertical, but not much more than this. A depth of about four inches of water is enough; if it be much more the deeper layers of water become deficient in oxygen and the mussels die. I have kept mussels alive and in good health for over two years in such shallow water as here suggested, and have been able to observe their modes of locomotion both forward and backward, and also the emission of their young. To secure this last successfully, it is necessary to keep a few small fish, such as sticklebacks or minnows, in the aquarium with the mussels; and in any case, to obtain satisfactory observations of any of the habits of the mussel, the aquarium must be placed where it will be free from vibrations and must be approached softly; mussels are disturbed by the shaking up" determinedly. No doubt several fresh-water animals may be kept to and the same aquarium, but it is advi the crayfish a place to itself, for it later devour nearly all the other occ

All these animals can be obtained a able prices from Mr. T. Bolton, 25, Road, Birmingham; but it is bett possible, to obtain them during an ganised *ad hoc*. Hydra can be fo clean ponds and ditches, but is di the best way to obtain it is to bring bottles full of water and pond-weeds contents into a larger vessel that examined, and then next day searc especially on that side of the vessel illuminated. Gnats' eggs and g during summer in water butts and s several species are sure to be foun at the bottom of a stagnant pond. of mussels in ponds is usually indic shells on the banks; the animals ca by the use of a long-handled rake, or a strong landing-net. Crayfish oc streams and rivers draining calcarec can be caught by placing at the l water weighted circular nets baited v herring (not too fresh) in the centre be arranged so that the net can be horizontal position. The favourite stone walls, wooden piles, and simi which afford sheltering recesses. I crayfish the processes of feeding, b of locomotion can be readily obser

The marine aquarium is less easy any rate at inland places; but ev possible on a quite small scale, for t the marine animals will live for a time in artificial sea-water. This vided by dissolving Tidman's sea-sa water, making the strength of the that its specific gravity is the san average sea-water, namely, 1·028 must, of course, be placed in the wa

The rearing of moths and butterfli the most widely practised of all na pursuits; but very few boys or girls attention to the behaviour of their If the caterpillar turns to a chrysalis chrysalis produces an imago, bette this expresses about all that the aver boy looks or hopes for. This carele prevented by the use of charts contai for each stage of the insect's life spaces in which observed facts ma Thus:

Egg.

Date of being laid	Position	Shape	Colour	A

Caterpillar, Stage I.

Length	Hairy or smooth	Resting position	Food plant	Time of feeding	Region of leaf eaten	Further remarks

ly, *mutatis mutandis*, with the succes-
. The charts should subsequently be
e basis of a consecutive and compara-
t of some of the insects reared.
wing books will be found useful: "An
n to Nature Study," Stenhouse (Mac-
The Natural History of Aquatic In-
all (Macmillan); "Round the Year,"
millan); "Practical Nature Study for
Latter (Dent); "Eton Nature Study,"
d ii., Hill and Webb (Duckworth);
Shore," Furneaux (Longmans); "In-
to Zoology," Davenport (Macmillan);
History of some Common Animals,"
mbridge Press); "Elementary Bio-
rey Parker (Macmillan). Of these the
re suitable only for senior candidates
by teachers.

N OR PHONETICS IN MODERN LANGUAGE TEACHING.

By F. M. Vipan,
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ENT reading in the school prospectus
" boys are taught Modern Languages
ne Direct Method " cannot but feel plea-
idea that his sons are receiving instruc-
hat he may conjecture to be a more
system than the one he was familiar
youth. It is only when he takes up
ation papers that his children sooner
ll have to answer, and sees the fami-
ts to be rendered in English and the
guage, that a feeling of mystery per-
as to why such an apparently radical
method was necessary to produce no
ange in result.
hould he happen to change his place of
and send his sons to another school, a
their progress in foreign languages is
ain, owing, it will be alleged, to insuffi-
nding in the essentials. Curiosity or
y then lead the parent to inquire what
tials are, what teachers themselves un-
y "Direct Method," and he will prob-
ne interpretation of the same depending
lue they, as individuals, attach—one
ion, another to conversation, a third to
a fourth to phonetics.
rest approach we can get to the defini-
ect Method is that it includes all forms
g in which oral work in the foreign
dominates over written. If this defini-
rrect, Master John, of Basingstoke,
reek eight hundred years ago from an
naiden of twenty, and Montaigne three
ars later, studying Latin with a "Ger-maine altogether ignorant of the French tongue," both enjoyed the advantages of the system: in fact, until quite recently, residence abroad or intercourse with the foreigner was deemed indispensable if more than a reading acquaintance with a language was required. Whether translation, conversation, or grammar be the basis employed, "Imitation Method" is the name with which this means of acquiring a language has now been dignified, and its supporters, although sometimes exposed to the risk of being called unscientific and consequently old-fashioned, are nevertheless in the majority. That this system had Fitch's approval may be gathered from a lecture on teaching delivered in 1880, where he advocates the formation of "parrot classes," and the practice of making children utter complete French sentences, of which merely a rough translation was given them.

The other branch of the Direct Method which relies mainly on oral instruction is Phonetics. To reform the "wretched system of studying language" thirty years ago, a preliminary training in this science was urgently recommended. The suggestion was not taken up, and to-day, after twenty years of professed ignorance of the phoneticians' existence and ten of controversy on their necessity, the teacher who would take advantage of the present Act of Indulgence and base the study of a language on the art of pronunciation is generally regarded, possibly humoured, as a well-meaning but mistaken fanatic.

Instead of treating the former as the complementary method of the latter, teachers often adopt one branch in preference to the other, owing to chance circumstances of early training, methods seen in actual practice, or those they have studied privately at home or abroad.

With pupils whose school training is drawing to a close, and with whom possession of a good vocabulary is of the utmost importance, the older method of imitation is undoubtedly the more suitable: it is, in fact, the one generally favoured by those who already possess a good knowledge of one or two languages and are desirous of entering upon the study of a third. With young children, on the other hand, it is different. As most languages have sounds peculiar to themselves which can only be learnt by long practice, begun when the vocal organs are still in a plastic condition, the best possible pronunciation must be considered the only important item in the first year's syllabus. This workable basis can best be acquired by Phonetics.

For consider, for a moment, an attempt being made to teach children pronunciation by means of the older method, that is to say, by continual corrections on the part of the master. No long experience is required to prove that even did masters possess the patience it would nevertheless be a physical impossibility, for the foreigner as for the English teacher, to carry out this method with phonographic regularity, except in schools where classes are small and the hours of teaching limited to eighteen instead of twenty-eight. A

source also of constant interruptions, and consequently of irritation on the part of the best disposed pupil, the method does not lend itself so readily as does that of the visible speech to the reproduction of such French sounds as are contained in *en, on, un, in,* which the untrained English ear would be inclined to consider nuances rather than as distinctly different sounds.

Again, the Imitation Method takes it for granted that the ear is infallible, a belief which finds a great number of its supporters among the foreign masters teaching languages in English schools who have not yet given their serious attention to the subject, and conclude that the very fact of their possessing the requisite power of imparting in their own countries literary and other knowledge to children who already possess the requisite pronunciation renders them capable of imparting this same pronunciation to the child of the foreigner.

In such educational but non-phonetic centres as Brussels and Lausanne, British children attending State schools often acquire remarkable volubility and the foreign intonation: as for their pronunciation, if the children do not betray their nationality with the first words they utter, the best they can hope for is to be mistaken for Germans, Danes, Swedes, possibly in rare cases for Russians. And this result is due not to failure in learning to pronounce such distinctly foreign sounds as *o, ou, u, r,* but to those harder difficulties due to the close resemblance that exists between the foreign and English sounds, which the untrained ear, relying solely on the Imitation Method, is incapable of perceiving.

With regard to the second method, school inspectors and other educational authorities have lately alleged that an exclusive use of a phonetic transcription in the early stages is prejudicial at a later period to the acquirement of the current orthography. This must not be taken to imply that these authorities attach undue importance to the written as opposed to the spoken language: a passive knowledge of the archaic forms, whether acquired by correspondence or otherwise, may be sufficient for most university examinations, but no one would nowadays maintain that to train boys for written tests is the aim of modern language teachers. What prompted the allegation was the belief that as first impressions are the strongest, it might take much valuable time to dissociate from the pupil's mind what it had already taken much valuable time to instil, namely, the phonetic shorthand.

A proof that first impressions are not easily, in some cases never, effaced, and that the study of phonetics must precede that of the literary language, is to be found in the following extract from a brochure recently submitted to the Belgian Government. Here it is stated that "In Germany faults in pronunciation, as *che verme la borde,* are very common, even in the case of those professors who are loud in their praises of, and recommend, the phonetic script. These gentlemen say, in explanation of such mispronunciation, 'We did not learn French by means of phonet the old method.'"

Generally speaking, all school child Continent go through an elementary physiology at one time or another, the position and use of the heart, lung tubes, œsophagus, and larynx. The no wish to suggest that teaching hour lengthened to include this subject, teachers of French and English might ously devote their first lessons to a of the organs employed in breathing production. Casts of the throat and n palates, manometers, &c., will help to interest of the pupil; but in case these curable, a coloured sectional drawing could replace the casts, two scraps o vocal chords, whilst a simple experin cigarette will illustrate the action palate in the production of nasal sound

The first lesson having been spent c tory remarks on anatomy, the training means of Vietor's wall chart will the

Whereas Germany allots four mon preliminary training in the sounds o language, English teachers working verse conditions might reasonably allo third term, therefore, of the scholastic see the pupil beginning in the curr graphy the recapitulation of what h been taken in the script, copied as hor practically learnt by heart. This temp with phonetics must be complete, and must now aim, not so much at extirpa impressions as at starvation by disuse.

Confusions, nevertheless, when the guage is attempted, will be inevitable. tion of the symbol for the letter is p most frequent error of this period, a tion, like phonetics itself, of that law nc in schools called *la loi de la moind* again, if the words required have not viously copied by the beginner, man will be due to the fact that, though see not leave the impression of their histo on his brain, an impression which or can indelibly fix. In the study of Fre graphical mistakes, such as writing for "hasard," or those due to the assi sounds, are, comparatively speaking, is that of the omission of particles in expressions: these faults will correct in time by the use of the reader. A culty will probably be experienced whe is called on to choose one of several co of letters as *er, és, ée, ai, et, est,* repr phonetics by the single symbol *e.* In t would perhaps be well to let the abo form the principal subject of several less they would be treated separately as v stantival, and, lastly, as adjectival tern

For the success of the method, suit are essential. In one volume continu expressed in pure colloquial forms and phonetic script; similar pieces with p

of paraphrases, easy definitions, and in the current orthography, in another. it system of burying the phonetic part between the grammar, vocabulary, and he end of the book, instead of placing beginning, must be condemned. Boys mpression that pronunciation is only of instead of primary, importance. Paral- s, current orthography one side and enerally literary phonetic, disregarding d syncope) the other, must be alto- ided, that the pupil may not have the of evading his difficulty by at once the more familiar signs. Pictures at the book might be dispensed with, but ork there would be coloured prints re- preferably a single subject. At pre- desire for economy in equipping our schools has encouraged the production so crammed with detail, and conse- so small a scale, that the attention k boys of a form, at any rate, cannot so quickly as one could wish on the uiring explanation.

al comparison of the two methods a vocabulary will have to be faced by ician, but the improvement in pronun- d the good command a boy should a perhaps very limited number of more than compensate for this loss.

all events certain that the master en- th the furtherance of a boy's studies fail to appreciate more highly his prede- orts to lay the only sure and solid foun- language than he would appreciate the ergy that gathers together a confused scuous store of linguistic facts for the making a specious show on the occa- e written examination.

usion, it were well to consider the age child, under existing conditions, might egin the study of a foreign language, will assume to be French. This depends ss on the social position or means of s. If the latter are in a position to to a first-rate preparatory and then school, where he will be placed with have enjoyed similar educational ad- ten, or even eight, need not be con- young. Twelve, on the other hand, nsidered the most suitable age for boys y schools of the grammar or municipal e there is a continual influx of scholar- s from elementary schools. At present -school pupils have had, as a rule, no training: they are therefore classed her attainments with boys of like age elves who have probably been studying ge, sometimes two, unfortunately, for more. Teaching on an old but not hod, where written work predominated where all explanations were given in a e tongue, and where the French-Eng- ary was allowed, rendered it possible expected to catch up" to make con- siderable progress, at all events in translations. But beginners, in any class above the lowest, place teachers of modern languages who use the Direct Method at a greater disadvantage perhaps than they do those of any other subject, since their presence necessitates the oral recapitulation of much that the older members must have heard to satiety. In the "Secret of Herbart," Dr. Hayward remarks that "Two things are fatal to interest, over-familiarity and total ignorance."

Masters who have adopted modern methods recognise the impossibility of building the superstructure of a language before the foundations have been laid, and can only regret that those who, owing to, say, two years' training, have some knowledge of the subject, should be sacrificed to those who are totally ignorant, a sacrifice that might be avoided would secondary schools of the municipal type make arrangements whereby boys up to the age of twelve could confine their attention to those subjects only which are undertaken by boys of a similar age in elementary schools. As Regulations have now been issued by the Board of Education for the pronunciation of Latin in secondary schools on a uniform system, the appearance of this document engenders the hope that the suggestions of inspectors, as to what they consider the foundation of language-study, as well as the age at which it might in varying circumstances be begun, will be collected, collated, and finally embodied in another official edict for modern language teachers.

EDUCATION BY PRESCRIPTION.

IN the latter part of last year the Committee of the Medical Profession, the British Medical Association, and the Board of Hygiene and Temperance laid before the Board of Education a memorandum which was practically an expansion of the petition presented to the Board in July, 1904, urging the need of instruction "in hygiene and temperance" in elementary schools.

The memorialists urge: (1) that instruction in hygiene and temperance be now specifically introduced into the curriculum of the Code, without further delay; and offer in an appendix (iv.) suggestions whereby this might easily be effected without incurring more than a slight disturbance of the present curriculum, to the details of which (as set forth in the current official volume) they hold that much objection may be taken on both scientific and moral grounds. (2) Since such instruction cannot be satisfactorily given except by specially qualified and trained teachers, and since provision for the training of such teachers can hardly be said to exist, it is also urged that facilities for special training in these subjects be afforded to teachers, by entitling local educational authorities to pay without surcharge for students sent to take the requisite course of study at certain approved centres. Pending the establishment of this systematic training of student teachers, a provisional syllabus is appended for the instruction in hygiene and temperance of teachers already

trained in other subjects. And, finally, (3) it is urged that these subjects be reported on by H.M. inspectors.

Appendices showing (*a*) the teaching as given in army schools, the colonies, and foreign countries; (*b*) a list of local educational authorities which have expressed their approval of such teaching, are included in the memorandum.

Few indeed would be inclined to question the importance or the necessity of the main object of the memorandum presented by the deputation headed by Sir Thomas Barlow to Mr. Birrell, as summarised under the three heads already mentioned. Attention has been already directed to their necessity in these pages on more than one occasion; and the "pressing need of the introduction of these subjects into the curriculum of all secondary schools and training colleges," which the memorialists trust will also be recognised by the Board of Education, has been urged as nothing less than a logical necessity.

As might have been expected from its origin, the memorandum is full of interesting and suggestive matter. The first part of appendix iv. (the teaching of observation and ratiocination by nature-study) is a short but luminous essay with applications embracing a range far beyond the two subjects of hygiene and temperance, to which it has a special reference; and it might well be adopted as the foundation of all educational methods in general. As regards its deductions, there are two statements, the general acceptance of which would alone outweigh the loss of most other so-called "education": "Until a child has learned to be clean and to love cleanliness, any further learning is comparatively unimportant"; and, again—after indicating why it is that a young child's eyesight is immature as well as delicate (the human eye not reaching its complete development before the age of seven or eight years)—"It follows, then, that" the teaching of "reading, writing, and sewing are inadmissible for children up to seven or eight years of age."

At the same time, it would be idle to pretend that these directions for a fresh departure in education are in no respect open to criticism. It is most important, in teaching the elements of a subject which is not only new but also additional to a list already crowded, that all unessential details and all needless minutiæ should be avoided. The foundation must be laid broad and strong and well; but it would be worse than useless to attempt to cram the workman thus engaged with a few isolated facts as to the tensile strength of the girders to be used in the superstructure, or to confuse him by illustrating the molecular differences between cast-iron and steel. Histological demonstrations may now and again serve to add points of interest to physiological facts which need to be known; but care should always be taken to make it plain that the former are, in the circumstances, not essential to the knowledge of either teacher or student. Otherwise, the value of a few special and isolated examples is certain to be exaggerated in this connection, and their significance will assuredly prove misleading—in t sense of that word. It is earnestly to therefore, that, when H.M. inspectors report on the results of the instruction student teachers and to their pupils, an ance with microscopic slides of lung, live bacteria, &c., for instance, will not be e a necessary proof of useful knowledge.

Again, we are convinced that great tion should be shown in the didactic tre such thorny subjects as alcohol and tob all means let every child be duly impre the evils certain to be entailed on his o ture body by the consumption of these s and let him learn that neither is at any t sary for even grown-up healthy foll healthy lives. But beware of trading boundless faith of the young child by him as gospel facts anything which his servation is hereafter certain to make hin and qualify—possibly with all the disa sults which sometimes follow the shatte ideal. Nor is it just and fair to any of t cerned to train the child by axioms whi applied to most of his relatives and frien class them as either fools or worse, what repute as honest, able, and God-fearing throughout these pages, the phrase " alcohol" is invariably used as though with "the abuse" of it; and the m "temperance" is degraded so as to sig total abstinence from "alcohol, tob strong tea." We not only believe tha real danger lest such teaching should aim, but the experience of such extreme of language in this particular, as sho results accruing from it in the Unite amply supports this warning. From tional point of view, that training in self-control which ensures moderation is valuable than a dead level of prohib eventually affords a far stronger safegua the dangers of excess.

On other grounds, we might urge tha lish language is not so rich in synony condone any endorsement of the vulga which the excellent term "temperance culated so as permanently to divorce "moderation." Possibly those respo drafting the memorandum believed that, of its varied experiences, the Board of would be indulgent to—just as, by virtu assumed attainments, its members deemed incapable of being corrupted by English. We might thus explain their desire that teachers of hygiene shoul their pupils to "keep their lips closed ing," when what they doubtless intend impress on them the desirability of ke lips closed while food is being chewe stands, the advice is indeed a counsel thing less than perfection. But it migh mended, as a "problem exercise" to in physical culture—if he wished to sec iety as a fasting man.

TIONAL UNION OF TEACHERS.

The President's Address.

By J. L. Paton, M.A.
Master of Manchester Grammar School.

is much that is excellent in the annual ess of the president of the National n of Teachers, Mr. A. R. Pickles, of It is full of apt quotation and pithy It looks at the question of education roadest point of view, not as the mere of instruction, nor as the best way of commercial and industrial competition , but as the great method of a new lution which is to achieve the better- people by enabling the working classes ntry to work out their own salvation. ity that such an address should have h an onslaught on the Board of Educa- War Office has gone out of fashion; people with an itch for throwing brick- the Board of Education their cockshy. rton judgment still rankles. It is, as well to repeat that the Cockerton was an act of honesty in administra- though it seemed to put back the clock ne, it was not well to build our new system on a lie. That the adverse es of that judgment to the children in affected were so unimportant is due -maligned Board.

t is hard to see whether Mr. Pickles Board for moving too fast or moving He appears to do both. He accuses reath of thwarting and hindering the t of secondary schools, and in the ing through with unseemly haste ques- licy which ought to have been calmly d carefully thought out. The resultant s that the Board has gone ahead as was consistent with safety. Mr. nplains that it has been too much the pupil-teacher centres. Does he ll is well in these centres as at present ? Are those who are responsible for selves satisfied? Is it possible in two half time at that) to weld into a is at one with itself that heterogeneous of entries with every variety and de- vious preparation and attainment? Is hed, when one realises the conditions, t the atmosphere is the atmosphere of ok, and the teachers who have higher culture and corporate life are utterly d at the hopelessness of carrying them her curious misconception occurs in tion. "There are," says Mr. Pickles, pupils (*i.e.*, in the secondary schools) the pupil teachers can be taught. Put pupil teachers along with the 2,742 ils over sixteen, and you have the lion inside the lamb." Mr. Pickles here at the only pupils over sixteen years those above the four years' course. course, utterly wrong. In my own school, for instance, there are 64 above the course and 133 over sixteen years of age. If this proportion holds good for all—I have no means of telling whether it does—then the number of pupils over sixteen would be 5,698 instead of 2,742. And this alters the whole complexion of the case.

Mr. Pickles is anxious for the development of secondary education, but he is more anxious for quantity than quality. The Board is the reverse. Secondary education has had faults enough, but it has preserved a certain distinctive quality, impalpable, it is true, but all the more deserving to be cherished; there has been a unity of life, if not of external organisation; that unity has consisted in a tradition and ideal which is almost peculiar to English secondary schools, and we cannot afford to lose it. It may be interesting to illustrate what I mean from the boy's own point of view. When I read Mr. Pickles' address, I had staying with me two boys who had passed out of elementary schools into a secondary day school (not my own). I led the conversation quietly to this question of differentia between the two types of school, and asked them whether they felt the difference, and in what it lay. The answer was prompt enough: "No public spirit in the elementary school; not so much freedom; you didn't know your masters in the same way." I questioned them about the teaching. They said that geography and history were much better taught in the elementary school, but in the secondary school you learned to teach yourself; "homework was stiff, but it did make you grapple with things."

There is not much really to be added to this; it contains in germ everything, and its significance is great. I do not blame my primary-school colleagues, I do not praise my secondary-school colleagues. There is nothing to be gained by either kettle or pot through calling each other names. We are all of one brotherhood in the profession; we have much to learn from each other. The real root of the matter was finely expressed by Mr. Kitchener in his evidence before the Commission of 1895 (vol. vi., p. 214): "The Arnold of board secondary schools is yet to come; there is no more important, no more pressing, no nobler work to be done by a rising Arnold to-day than to show by striking example how the public-school feeling can be combined with higher grade elementary work." There are many women and men, not only in primary schools, but also in industrial schools and lads' clubs, who are working in the spirit of Arnold, but there has not been, as yet, any general diffusion of that spirit, and we should look to the newer generation of pupil teachers who are now passing through the secondary schools to do this work of diffusion. True efficiency cannot be gained without this "impalpable" factor.

It has nothing to do with social status or wealth. We are all at one with Mr. Pickles in repudiating the snobbish conception of secondary education as the privilege of the respectable. We say "Hear, hear" to the words in which he stig-

matises the sentence in which this conception emerges in a Board of Education report. Education is no longer for those who can pay for it; it should be for all who have the capacity to profit by it. If it is the duty of every citizen to do his best for the community, it is the duty of the community to place each individual in such a position and give him such equipment as will enable him to do his best. The standard by which we are to test our educational policy is, after all, the standard of the Golden Rule: "Are we ready to allow to others what we conceive to be necessary and desirable for ourselves? Have we one standard for ourselves and another for our neighbours? What is life for me is life also for my neighbour; the best life for me is the best life for him, and life is the full and free development of all the best powers and faculties of body, mind, and soul."

THE GEOGRAPHY OF THE BRITISH ISLES.[1]

By A. Morley Davies, B.Sc. (Lond.),
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II.

Rivers and Communications.

THE relations of routes of communication to rivers and watersheds cannot be expressed in a simple formula. Where river-basins are bounded by high and well-marked watersheds, the roads and railways are naturally taken along the course of the river, and cross or tunnel under the watersheds at the points where these are most deeply notched. But where the valleys are broad and watersheds indistinct, we may often find a belt of lowland, due to the existence of softer rock, which though running across several river-systems affords a natural route of communication. Such a belt is Strathmore, lying between the Sidlaws and the Highlands, partly occupied by the Tay and its tributary the Isla, partly by the Esk, and giving the Caledonian Railway its route from Perth to Forfar. A similar belt lies in the Weald at the foot of the North Downs, and affords the South-Eastern Railway an almost straight and level route from Guildford to Dover, although it crosses the watersheds between the Wey, Mole, Medway, and Stour in turn.

South-East England.—The enormously preponderating importance of London over all other towns causes the main roads and railways to be arranged in a radiating manner with London as the centre. The first important physical obstruction which all the railways encounter is the Chalk escarpment, and most of them avail themselves of the notches at the head of valleys, dry or otherwise, to pass it. This is done by the G.E.R. near Saffron Walden, the G.N.R. at Hitchin, the M.R. at the head of the Lea Valley north of Luton, the L.N.W.R. at Tring, the G.C.R. at Wendover and Prince's Risborough. The original G.W.R. follows the easiest of all outlets—the Thames Valley; but the more direct wes from Reading, after following the Kenn and the L.S.W.R. beyond Basingstok make their way across the broad Chal Salisbury Plain, and to do this avail the structural valleys (Vale of Pewsey an Wardour respectively), due to small an the middle of the Chalk area. The sou cross the Chalk escarpment by river-Guildford, Dorking, and Sevenoaks, ar nelling under a dry-valley-notch at N

Beyond the Chalk the course of the ways is much more varied. The M.R., and L.N.W.R. get through the lands of Northamptonshire by deep cu tunnels. The G.W.R. at Swindon finc pass over the watershed into the Av which indents the Oolite escarpment usual way, and it is only the windin valley that make the Box tunnel neces

The southern railways, after cro Weald, cross the South Downs partly valleys (Arun, Ouse, &c.), partly by under dry-valley-notches, as in the case to Brighton.

In the *Northern and Western* regio land the broad plains offer easy rout munication, while the uplands are serio tions, only traversable by means of st ents and tunnels, except in a few ca very deep valleys have been cut in th long belt of lowland at the foot of the carpment is the site of an almost cont of railways, diverted here and there i ground by the attraction of some grea population. From Exeter to Bristol t of the main G.W.R., considerable stre being dead level. From Bristol to Nottingham, the line is part of the Mi is diverted from the lowland up the st incline to Birmingham. In the lower Trent Valley, and its continuation Valley or Vale of York, we find Northern and its continuation to Sc N.E.R., which beyond the Tees becom nearer and nearer to the sea by the en of the Pennine uplands.

The branch lowland which runs fro across the Midlands to Cheshire and affords the route for the L.N.W.R. f (where it emerges from the Oolite hills Chester, Liverpool, and Lancaster. last point it has to climb over the ne ground (Shap Fells) connecting Lakel Pennines, in order to reach the lowl Vale of Eden and Carlisle.

The Pennine uplands, separating the populous districts of Lancashire of the West Riding and Tees and offered a problem for attack by a num way engineers. The deepest notch a at the head of the Tyne, and across th Roman Wall and the Newcastle and C way. Next in importance is the pass upper courses of the Ribble and Aire

[1] The first article appeared in The School World for April, 1907.

which is taken advantage of by the
ute from Leeds to the Lake District
e. But these lead to relatively thinly-
districts on the western side; and it is
ith that the most numerous cross-con-
each with its long tunnel under the
unite Manchester and the other cotton-
eeds and Bradford and Sheffield.
sh uplands being thinly populated, ex-
coalfields, do not require many rail-
e three most important lines run along
rn, southern, and eastern margins—
, Chester to Holyhead, and G.W.R.,
to Fishguard and Milford—both
Ireland, and the latter taking the great
f Newport and Cardiff, and the tin and
n of Swansea on the way—and a joint
Bristol (*via* the Severn Tunnel) through
and Shrewsbury to the north. Minor
rate into the heart of Wales along the
m, and Wye valleys.
.—The Southern Uplands form a seri-
r to communication between England
owlands. The North British Railway
the North-Eastern) finds a narrow
the east coast to Edinburgh. Another
tinues the Midland from Carlisle to
by a very up-and-down route, utilising
of the Liddel, Teviot, and Gala. The
(continuing the L.N.W.R.) climbs
watershed between Annandale and
by a steep incline at Beattock, near
he Glasgow and South-Western (con-
Midland to Glasgow) runs up Niths-
ver to Ayr. Lastly, a joint line winds
outhern margin of the uplands of Gal-
m Carlisle to Stranraer, whence is the
a-passage to Ireland (Larne).
ring the Lowlands these few lines
into one of those complex networks so
tic of industrial districts. But the
are not without their obstructions to
mmunication. These are of two kinds:
broad Firths of Forth and Tay cut far
nd; but both are now bridged, greatly
tening of the route from Edinburgh to
Secondly, the high Ochils and Sidlaws
thern Lowlands pinch in the various
o foci at Stirling and Perth—towns
now great railway junctions for the
raphical reasons that once made them
strategic fortresses.
lighlands, railways are scanty. From
he various lines of the Great North of
diate out along the lowland border and
f the Highland valleys; but elsewhere
g and extremely winding lines climb-
fficulty the Highland passes. The long
he west coast make a line along that
ssible, except for very short distances,
rs carry all the traffic along it. Only
ints do railways reach the west coast—
laig, and Strome Ferry—the three lines
om widely different points.
—The absence of any great mass of continuous upland has facilitated the making not only of railways but also of canals, all the important rivers being linked up by the latter. The principal railways radiate from Dublin to Wexford, Cork, Galway, Londonderry, and Belfast. The largest upland area, that of Wicklow, coming right against the sea, compels the first of these lines to squeeze its way along the coast.

Localisation of Industries.

Two main factors operate to determine the locality chosen by any industry—the supply of *raw material* and the supply of *power* (which in this country, at the present time, practically means *coal*). A third factor is sometimes of importance—accessibility to a market—but this tends rather to scatter than to localise, since markets are scattered; the industries most influenced by it are those which are least dependent on special raw materials or power on a large scale. Climatic conditions form a fourth factor, important in some industries, such as cotton-spinning, but usually of little significance.

It is only on the broadest survey of the distribution of industry that we can apply these simple factors as an explanation. When we turn to details, we find that, in the case of Britain, historical considerations cannot be neglected. Industries often maintain their existence in a locality after changed conditions have nullified the advantages to which their original settlement there was due. This tendency to local persistence has been aptly termed *industrial inertia*, and when a revolution in industrial processes takes place there is a conflict between industrial inertia and the new factors brought into existence by the change. Examples of the success of inertia are given by the straw-plait industry of Luton, originally localised there by the superior quality of the Chiltern straw, but now importing straw largely from abroad. Another example is found in the tin-plate and copper industries of South Wales, originally based on the proximity of Cornish ores, but now on the imports of ore from more distant sources. The failure of industrial inertia in face of a great industrial revolution is seen in the dying out of the iron industry in regions devoid of coal, particularly Sussex, when the use of coal in smelting replaced that of wood.

Lastly, it must be remembered that modern improvements in transport are tending to equalise the advantages of sites, and so to delocalise industries to some extent. The possibility of "garden cities" depends essentially on the fact that for many industries all places possessing good railway facilities are equally suitable. In spite of industrial inertia we may expect that in the future industry will gradually become less and less dependent on local conditions other than those of transport.

With these principles in mind we may quickly run over our great industrial districts.

South and East of England.—Owing to the absence of coal, industries are not localised here on the grand scale seen in the coalfields. London

assing the gap into the next lowland; roducers from both lowlands will meet ge their wares. Such towns may be ap-towns." Lincoln, Guildford, Stir- xamples. Such towns are (or were) of e strategic importance for obvious nd though they have often fallen into ate rank as towns in modern times, ain their importance, at least, as rail- ons. Sometimes the gap-town is situ- n the gap itself, but in the lowland a off. Thus Aylesbury, on a low hill of the plain, and not far from three gaps terns, has always been of more import- as a market town and a strategic n the villages in the gaps themselves, mmanded all three routes. When in gap we have a high-level pass, there no town on the pass itself, but one at of the route over the pass, where it e lowlands. Thus Carlisle and New- be regarded as, in a sense, gap-towns, stand at either end of the easiest route Pennines; but each stands in relation route—Carlisle at the opening of the ey, while Newcastle is also a bridge- ese two towns, once the fortresses he two routes by which England might l by the Scots, are now, for the same al reasons, important junctions on the utes between the two kingdoms.

r the realisation of the importance of n-sites that orographical maps are of st value; and I will conclude by urging rtance upon all teachers of geography. ments of the reasons for the importance places, or the routes of railways, to ve necessarily had to confine myself, are alue. What is essential is that every ould, as far as possible, work them out f upon the map.

APHRASING IN PRACTICE.

By Norman L. Frazer, M.A.

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III.

English composition paper set in last s senior Oxford Local examination, the uestion, which as a matter of fact was , ran as follows:

hrase the following sonnet, paying tention to the italicised words. Add preting the historical allusions:

ing Antiquarians search the ground
with *curious* pains, the Bard, *a Seer*,
s:—The men that have been re-appear;
or travel *girt*, for business *gowned*;
recline on couches, myrtle-crowned,
glee: why not? For fresh and clear,
ues were of the passing year,
is time-buried pavement. From that mound
Hoards may come forth of Trojans, Maximins,
Shrunk into coins with all their warlike toil:
Or a fierce impress issues with its foil
Of tenderness—the wolf, whose *suckling Twins*
The unlettered ploughboy pities when he wins
The *casual* treasures from the furrowed soil."
(Wordsworth.)

We gave the examiners' report on the candidates' rendering of this sonnet in our first article. It "proved too hard" for the unlettered schoolboy. In truth, it was not likely to prove easy to anyone who had not been through such a course of literature as we have already suggested. We ourselves know modern-side boys of more than average ability who took the examination and confessed that the passage was quite beyond them. But Macaulay's "Lays" and Milton's "Lycidas" between them would have flooded the thing with light. Gray's "Bard" or "Elegy" would have accounted for anything not covered by them. In fact, had we set out purposely—as we did not set out—to devise a scheme to lead up naturally to the senior stage of paraphrasing, we could not have chosen a better example for our end than this set by the Locals examiners. No model could better test that *association* of meaning and colour which Mr. Bowen maintained must be appreciated in a successful paraphrase.

The higher phases of the art have been more than touched upon by Mr. Fowler in the article to which we have several times referred, and he has in it mentioned outstanding models of scholarly paraphrasing; we shall, therefore, content ourselves with sketching suitable exercises and giving some passages for paraphrase. But before doing so, we should like first to suggest that Bacon's "Essays" in prose and any good sonnet in verse present almost inexhaustible material, and then to refer, by way of general warning (and not necessarily literal adhesion), to Prof. Saintsbury's opinion that "analysis of Shelley's poetry is nearly impossible, and of little value when it can be made."

(1) Substitute *loose* for *periodic* structure in the following passage.

(2) Rewrite in modern English (*e.g.*, pieces from "Defence of Poesy," "Euphues," &c.).

(3) Restate the following argument in your own words.

(4) Rewrite, substituting for oratorical tone the tone of narration or description.

(5) Restate in *oratio obliqua* the following speech.

The three pieces which follow were set—not at sight—in recent Cambridge Local examinations.

(*a*)
A witchcraft drew me hither;
That most ingrateful boy there by your side,
From the rude sea's enrag'd and foamy mouth
Did I redeem; a wreck past hope he was:
His life I gave him, and did thereto add
My love, without retention or restraint,
All his in dedication; for his sake
Did I expose myself, pure for his love,
Into the danger of this adverse town;
Drew to defend him when he was beset:

Where being apprehended, his false cunning—
Not meaning to partake with me in danger—
Taught him to face me out of his acquaintance,
And grew a twenty years-removed thing
While one would wink.

(Shakespeare, *Twelfth Night.*)

(b) Can such things be,
And overcome us like a summer's cloud,
Without our special wonder? You make me strange
Even to the disposition that I owe,
When now I think you can behold such sights,
And keep the natural ruby of your cheeks.

(Shakespeare, *Macbeth.*)

(c) How he solicits heaven,
Himself best knows: but strangely-visited people,
All swoln and ulcerous, pitiful to the eye,
The mere despair of surgery, he cures;
Hanging a golden stamp about their necks,
Put on with holy prayers: and 'tis spoken,
To the succeeding royalty he leaves
The healing benediction.

(Shakespeare, *Macbeth.*)

We proceed now to give selections which we think specially educative for our present purpose.

(1) Express in your own words the thoughts contained in the following passage:

[illegible]

(3) Expand the following sonnet, ex[plain] the allusions:

Fairfax, whose name in arms through Eur
Filling each mouth with envy or with pra
And all her jealous monarchs with amaze
And rumours loud that daunt remotest kin
Thy firm unshaken virtue ever brings
Victory home, though new rebellions rai
Their Hydra heads, and the false North
Her broken league to imp their serpent w
O yet a nobler task awaits thy hand
(For what can war but endless war still b
Till truth and right from violence be free
And public faith cleared from the shame
Of public fraud. In vain doth Valour bl
While Avarice and Rapine share the lanc

[*Note.*—Almost any other of Milto[n] would be an equally good subject for p[araphrase].

(4) Rewrite in your own words "L[ycidas]" 50-75.

Where were ye Nymphs, when the remor
* * * * * *
Comes the blind Fury with the abhorred
And slits the thin-spun life.

(5) Paraphrase the two following [from] Shakespeare:

When to the sessions of sweet silent th
I summon up remembrance of things pas
I sigh the lack of many a thing I sought
And with old woes new wail my dear ti[me's]
[illegible]

a that bares her bosom to the moon,
nds that will be howling at all hours
e up-gather'd now like sleeping flowers,
s, for everything, we are out of tune;
s us not.—Great God! I'd rather be
n suckled in a creed outworn,—
ht I, standing on this pleasant lea,
glimpses that would make me less forlorn;
ght of Proteus rising from the sea;
r old Triton blow his wreathéd horn.

ll now give two or three prose passages hrasing.

es are for spending; and spending for honour actions. Therefore extraordinary expense must by the worth of the occasion; for voluntary ay be as well for a man's country as for the of heaven. But ordinary expense ought to be a man's estate, and governed with such regard, within his compass; and not subject to deceit of servants; and ordered to the best show, that may be less than the estimation abroad. If a man will keep but of even hand, his expenses ought to be but to the half of his nd if he think to wax rich, but to the third part. iseness for the greatest to descend and look into estate. Some forbear it, not upon negligence doubting to bring themselves into melancholy, they shall find it broken: but wounds cannot be out searching.—Bacon, *Of Expense.*

the Author of Nature does not give His creatures isly such and such perceptions, without regard ehaviour, why He does not make them happy he instrumentality of their own actions, and eir bringing any sufferings upon themselves, is atter. Perhaps there may be some impossibili- e nature of things which we are unacquainted less happiness, it may be, would upon the whole ed by such a method of conduct than is by the Or perhaps divine goodness, with which, if I ot, we make very free in our speculations, may oare single proposition to produce happiness, but on to make the good, the faithful, the honest y. Perhaps an infinitely perfect mind may be ith seeing his creatures behave suitably to the ich he has given them, to the relations which aced them in to each other, and to that which l in to himself which, during their existence, is ssary, and which is the most important one of r's *Analogy.*

next alleged we must not expose ourselves to s without necessity, and next to that, not r time in vain things. To both these objections er will serve, out of the grounds already laid, ll men such books are not temptations nor but useful drugs and materials wherewith to d compose effective and strong medicines, which cannot want. The rest, as children and childish have not the art to qualify and prepare these inerals, may well be exhorted to forbear, but orcibly they cannot be by all the licensing that quisition could ever yet contrive, which is what d to deliver next: that this order of licensing nothing to the end for which it was framed, and ost prevented me by being clear already while h hath been explaining. See the ingenuity of o, when she *gets a free and willing* hand, opens herself faster than the pace of method and discourse can overtake her. It was the task which I began with, to show that no nation, or well-instituted state, if they valued books at all, did ever use this way of licensing; and it might be answered that this is a piece of prudence lately discovered; to which I return that, as it was a thing slight and obvious to think on, so if it had been difficult to find out there wanted not among them long since who suggested such a course, which they not following, leave us a pattern of their judgment, that it was not the not knowing, but the not approving, which was the cause of their not using it.—Milton, *Areopagitica.*

CAMBRIDGE LOCAL EXAMINATIONS, 1906.

Hints for Teachers from the Examiners' Reports.

ONE useful purpose at least is served by a well-conducted external examination, for it serves to lay bare general weaknesses in the knowledge of candidates, and to indicate subjects to which teachers may with advantage devote particular attention in their teaching. The following remarks from the forty-ninth annual report of the University of Cambridge Local Examinations Syndicate will show what subjects appear to present difficulties to a majority of candidates, and where additional work and recapitulation are desirable. The order in which the subjects are dealt with follows that of the original report.

Compulsory Section.—The examiners of the preliminary candidates in *arithmetic* state that a very large number both of boys and girls have no clear idea of the meaning of "rate per cent." in interest or profit. Though a fair number gave the correct answer to the easy problem, it was often difficult to find out, from their way of doing the question, whether they understood what they were about or obtained the right answer by accident.

The most serious fault in the case of junior candidates was inaccuracy in simple addition, multiplication, and division. At some centres the working of the questions was confined to a margin of paper about an inch wide; such cramped work conduced neither to clearness nor to accuracy. In the second half of the paper ignorance of tables, especially of cubic measure, was very common.

At some centres the work of senior candidates was very slovenly and inaccurate. Many candidates failed to obtain the final answer to a question in decimals to the required degree of accuracy because they used too rough an approximation in the first part of their answers. In the answers on compound interest the calculation was not infrequently carried to an absurd number of places of decimals.

English Subjects.—There was a want of clear distinction in the *English grammar* answers of junior candidates between gerund, verbal noun, and present participle, and between adverb and conjunction. The question on adverbial clauses was only fairly well done.

Speaking of the *English composition* papers of preliminary candidates, the examiners say that candidates should be warned against stringing sentences together with "and . . . and," and against the ambiguous use of pronouns. It may again be pointed out that more attention should be given to punctuation. There was also an appearance of slovenliness in the neglect of interrogation-marks and inverted commas.

So far as the essays of junior candidates were concerned, it is reported that in the boys' papers these were often jejune, badly arranged and expressed, and not free from grammatical errors, while many of those written by the girls consisted of a string of monotonous, unconnected sentences, separated only by commas. The better candidates were often partially, but seldom completely, successful in expressing in a single complex sentence the sense of a number of simple sentences. The correction of faulty sentences was much the weakest part of the papers.

The *paraphrasing* of Scott's "Lady of the Lake" by preliminary candidates was rarely correct or concise, and that of Shakespeare's "Henry V." by junior candidates was disappointing.

In the answers of junior candidates to the questions on "Henry V." some lack of intelligence was shown in estimating what information was required for the comparison of two characters in the play. With some bright exceptions, the candidates, in answering these questions, merely wrote out selections from the introductions to their text-books, often with such mistakes as showed that they had not understood them. The paper for senior candidates had been framed, for the most part, as a test of a general appreciation of "Henry V." as a *play*, but, while a very fair number of the candidates had acquired an intelligent conception of the dramatic presentment of the theme and of the conditions of the Elizabethan stage, the majority showed only too clearly that they had read the play with little reference to its dramatic significance.

Referring to the answers of senior candidates to the questions on English authors, the examiners state that in paraphrasing, the tendency of all the candidates was to give a general indication of the meaning rather than an accurate rendering of the language and construction; the great majority altogether failed to grasp the meaning of the stanza from "Childe Harold"; the paraphrasing of passages from "The Tempest" was better done. The questions generally attempted and best answered were those which demanded a knowledge of bare facts rather than evidence that the candidates really understood motives, causes, and aims.

Constitutional history was perhaps the weakest point in the answers of senior candidates to the *English history* paper. The constitutional significance of the Synod of Whitby was generally missed; very few candidates showed an accurate knowledge of Henry II.'s judicial reforms; there was much uncertainty as to the date and duration of the Reformation Parliament, which was sometimes taken to mean "Parliament during the Reformation"; Darnel's case was scarcely e in connection with the Petition of Right; accounts of the growth of toleration unde III. and George IV. were generally poor beth's treatment of Mary, Queen of Sc discussed fairly well by very many candid the legal aspect of the question was neglected.

The answers in *geography* of senior ca showed that the physical aspect of geogr again been somewhat neglected. This wa by the answers to the questions on the Asia and the monsoons. Rivers were fr described as running from the sea to th tains, and throwing off tributaries, wh confusion was caused by neglect of the a wind is named after the point of the from which it blows. Map-drawing show improvement, but still left much to be d

CLASSICAL SECTION.—The set book had been got up with interest by preliminar dates offering *Latin*, but the translati stantly betrayed ignorance of the analys sentences. A few candidates made sens unprepared piece, or of parts of it; but the attempts sent up were mere guess-wo composition was extremely weak.

Many junior candidates were safe i sentences only; the easy complex senten very often badly rendered. In the great of cases, little or no training in composi been given, and French and German wo used freely to eke out a deficient Latin voc

MODERN LANGUAGES SECTION.—The re of easy English sentences into *French* liminary candidates were, as a rule, poo correct; very few of the candidates k French for "until." The replies in F the questions set in that language we done, though the questions were for t part understood. The spelling of Frenc throughout was very faulty, and the acce usually either omitted or misused.

The *French accidence* of junior candid weak. It was clear that at many centre cient attention had been given to this bran subject. In the short sentences for tr into French, the work, speaking gener good, but idiomatic renderings were fr marred by grammatical blunders.

The answers of senior candidates to the on the use of the indicative and subjunctiv showed that this part of the subject v imperfectly known. The change of a from direct to indirect speech puzzled number of candidates; many gave the tr into English, while a few stated they did derstand what was meant by "indirect The performance of these candidates in tion was not satisfactory, in spite of a fe lent renderings of the English passage s "free composition" was almost uniform

MATHEMATICAL SECTION.—In their work much carelessness was shown by ary candidates, both in drawing lines and

and also in measuring lines and angles
rawn. Results, too, were often given
to questions that had been set in *centi-*
A fair number of correct answers were
the proposition set from the third book
; but few attempts were made to solve
sponding rider. An easy rider, however,
relation between the side and the height
uilateral triangle was successfully at-
by several of the candidates. The only
that was poorly answered by junior can-
as one which required a knowledge of
of a point at which a given line subtends
ngle. There was observable also, in
es, an imperfect comprehension of the
of such terms as *isosceles*, *perpendicular*,
he various proofs offered by the candi-
cated that the use of modern text-books
try is becoming more common, and the
haracter of the work showed that under
egulations fewer candidates find the sub-
pelessly difficult as when Euclid's treat-
t was rigorously exacted. On the other
ging from the way in which different
proofs were written out, there would
be less risk of important details being
when the proofs attempted are those of
an in the case of other proofs.
strange to observe how many preliminary
s unnecessarily increased their labour in
a paper by finding the product of four al-
factors before instead of after substitut-
lues of the letters. Great weakness was
dealing with a problem leading to a sim-
ion, comparatively few candidates show-
r grasp of the data. Many who did well
respects were unable to solve equations
literal coefficients. The question on
as well answered by the majority of
o attempted it, although a considerable
iled to use the prescribed unit of length.
of the subject appears to be neglected in
ools.
ns on factorising, except in a very
se, were badly done by junior candidates,
attempts at finding a highest common
re often failures. In the simplification
ns there was much inaccuracy, and often
in the management of signs. The equa-
e generally solved; but there were com-
few good graphs, and in a problem it
happened that numbers with different
e added or subtracted.
solution of two simultaneous equations,
and one quadratic, a very common mis-
enior candidates was the squaring of the
uation, resulting in four sets of values
riables instead of only the two sets re-
The graph was not well done; a number
lates drew the graph set in the examina-
e preceding year, which bore no resem-
the one they were asked to draw.

AL SCIENCES SECTION.—At some centres
ry candidates taking *chemistry* used
formulæ which they did not understand
and which were quite unnecessary. Very few attempted a simple question on the experiments by which the properties of chalk and quick-lime can be illustrated.

The answers of junior candidates to questions on descriptive chemistry were better than those on theoretical points and showed that the teaching had been largely experimental, but they also showed that appeal had been made too generally to the memory rather than to the reasoning powers. Frequently experiments were described with fair accuracy, although it was obvious that they had not been understood. A large proportion of those who were rejected had so little knowledge of the subject that they could not be regarded as serious candidates.

Many senior candidates were unable to work out their results in their practical chemistry.

Many senior candidates offering *heat* appeared to have taken the paper without any serious preparation, and had neither seen nor done any experimental work in the subject. In *light*, the senior candidates showed little knowledge of the properties of mirrors and lenses.

Their answers to the questions on *statical electricity* showed that many senior candidates had never understood the meaning of the fundamental definitions; for instance, very few correct definitions of an electric field were given, and a large number of the candidates confused lines of electric force with equipotential surfaces. As in the preceding year, the answers to the questions on magnetism were, with a few exceptions, very weak.

The answers of preliminary candidates to the *botany* questions dealing with plant-functions were less satisfactory than those involving a description of form; nearly every one attempted the question, "Explain what happens if a green plant is deprived of (*a*) sunlight, (*b*) water," but in comparatively few cases was any explanation given. The answers of junior candidates requiring a knowledge of simple physiological experiments were, with a few exceptions, poor.

A simple specimen of barberry showing leaves reduced to spines was almost uniformly misunderstood by senior candidates, affording evidence that very few of the candidates had gained a knowledge of external morphology from the actual observation of specimens. Physiological morphology had clearly been neglected in the teaching, as only a small number of good answers were obtained to a question on the adaptation of the root-system to its work. The importance of this branch of the subject cannot be too strongly urged upon teachers, as by its means alone can morphology be made of any considerable educational value. A knowledge of simple experiments on geotropism and heliotropism was sadly wanting except in the case of candidates from a few centres. There can be no excuse for the neglect of experiments which can be carried out in any class-room at the cost of two or three shillings. In answering an easy question on seed-dispersal many candidates not only confused fruit and seed, but did not even distinguish between the mere

opening of a fruit and the actual dispersal of the seeds.

There was a general want of appreciation of the difference between a sketch and a map by junior candidates taking *physical geography*: a majority of the candidates copied the sketch supplied instead of constructing a map from it. Latitude and longitude were, with few exceptions, defined as lines instead of angles. The statements that the trade winds start from the poles and that all lava solidifies into pumice were common, as was also a tendency to regard a diagram as an answer to a question.

Some of the senior girls, indeed, attempted to describe a fog and to explain its formation without once mentioning either water or water-vapour. Almost all the candidates considered every change in a coast-line to be evidence of elevation or depression, and they failed to recognise the effects of deposition and erosion as in any way distinct. Except perhaps a dozen, all those who answered the question on tides seemed to be under the impression that the moon, on account of its nearness, attracts the earth more strongly than the sun does. Even those who wrote of "differential attraction" did not, in most cases, know what they meant by the expression.

THE CAMBRIDGE NATURAL HISTORY.[1]

THE first volume of this now well-known series appears ninth in order of publication, leaving but one volume, the fourth, to complete the whole of the projected work. As is fitting, the opening chapter is devoted to a discussion of the properties of protoplasm, the nature of the animal cell, and the distinctive features of animals and plants. This is followed by one hundred and twenty pages devoted to the Protozoa proper. Here we notice a lack of uniformity among the co-authors. Prof. Hartog prefaces his sections with italicised definitions; the remaining authors, while giving a general preliminary account of groups and sub-groups, do not attempt the "cut-and-dried" concise statement. We should have been glad to see Prof. Hartog in line with his company in this respect, for his definitions, though accurate, are at times cumbersome, and his use of the word "organ" in a double sense in the definition of Protozoa is confusing. Apart from this one slight criticism we have nothing but praise for Prof. Hartog's work. He has produced a thoroughly readable and interesting account of these lowly but important animals, and has so skilfully dealt with the technicalities that we imagine that the layman in zoology could read his chapters with appreciation and enjoyment.

Prof. Hickson, in dealing with the Cœlenterata, has adopted a probably safe course in separating the Scyphozoa (jelly-fishes) from the Hydrozoa on the one hand, and the Anthozoa on the other. By different schools of zoologists these have been placed by some in the former others in the latter class; and we agree author that an intermediate position as class is the best expression of our pres of knowledge. We must confess to a f disappointment on reading Prof. Hicks cussion of coral reefs. While we are pared to admit that Darwin's theory of s is a possible, nay, probable explanatio origin of some reefs, a statement whic no mention of Murray's rival theory of u from considerable depths, but is cont adducing the phenomena of the Maldi pelago and its plateau of denudation as for the other side, appears somewhat in Moreover, we do not find ourselves in a with the author as to the conclusion to from the Funafuti borings; our own ver reading the Royal Society's Report in "not proven."

It is invidious to particularise where al but we may perhaps be allowed to say t MacBride's account of the Echinoder peared to us the best portion of this volume. He has incorporated so much p in his accounts that we feel we are dea the *living* animal in its own waters, merely the corpse submerged in the c dish. The description of the function pedicellariæ is quite fascinating.

The whole volume is profusely and b illustrated, and throughout is up-to-d degree that reflects the utmost credit o authors.

THE EDUCATION (SCOTLAND)

FOR the third and, it is to be hoped, of asking, an Education (Scotland been laid on the table of the Commons. This Bill has a much more scope than its unfortunate predecessors. ing some of the vital questions raised it may possibly escape the strenuous o they met with, and arrive eventually in sired haven of Acts.

The Bill has so far been received with fied enthusiasm by the country at large contains one or two provisions that mar advance on anything that has previously before the legislature. Thus, for exan Bill proposes to give school boards the enforcing the attendance at continuatio of all pupils between fourteen and seven of age who are not otherwise receiving a tory education. These years, by gen sent, are the most critical in a boy's lif would be a great gain if they were spen extent under adequate supervision and d It should also be remembered that the qu industrial advancement is essentially a tional one. Hitherto the full fruits school system have been lost through ceasing, for the large majority of the pc

[1] "The Cambridge Natural History." Vol. i. Protozoa, Porifera, Cœlenterata, Ctenophora and Echinodermata. By Profs. M. Hartog, I. B. J. Sollas, S. J. Hickson, and E. W. MacBride. (Macmillan.) 17s. net.

years of age, an age when real educa-
just be beginning. Any movement for
general education beyond that stage
ve the hearty support of the public.
al, moral, and educational points of
iew provision in this year's Education
of the most far-reaching that has come
iament for many years. In the Bill as
the Secretary for Scotland it is left
:retion of the school board to decide
nst compulsory attendance at continua-
;. Before the Bill assumes final form
ioped that this discretionary power will
vn, and that statutory authority will be
:ompulsory attendance at continuation
all between fourteen and seventeen
e.

ı provisions of the new Bill are given
wing summary:

EDUCATION (SCOTLAND) BILL.

School Boards.—(1) It shall be lawful for
jointly or singly to incur expenditure—
'iding any form of instruction which may be
r Code or Minute of the Department.
'iding for physical training and recreation of

'iding accommodation, apparatus, equipment
or supply of meals to pupils, provided no ex-
d in the purchase of food is charged against
nd.
iding pupils with books, stationery, or other
ool equipment.
ng salaries of superintendents and organisers
or other special forms of education.
)lishing bursaries for attendance at secondary
al institutions, or universities.
'iding educational facilities for pupils in out-
-
ng expenses of delegates to educational con-

iding for the medical inspection and super-
ools and scholars.
boards shall have the power of enforcing the
: continuation classes of pupils between four-
:nteen years of age who have been granted
)m school before fourteen years of age.
boards shall have the power to make com-
attendance at continuation classes until the
een of young persons who are not otherwise
iitable education.
)oards are empowered to grant pensions to all
ieir employment.
:partment will be prepared to pay to school
ant not exceeding one-half of the pension
total amount of pension in no case to exceed
the retiring salary.
ıcation (Scotland) Fund shall be constituted
grants at present accruing to Scotland, and
ıll be applied to the following purposes in the

grants towards the payment of pensions of

the expenses of the examination of secondary

payment to central institutions similar to
nt allowed by town and county councils.

(*d*) Dividing the balance among the Secondary Education Committees, having regard in so doing to the necessities of each district.

(7) School boards providing education for pupils outside their own area are empowered to recover the additional expenditure thus incurred from the school board to whose area the said pupils belong.

(8) At every election for a school board, each voter may give one, and no more than one, vote for each candidate.

(9) Provision is made for the transference of endowed schools to the school board where such transference is desired.

THE SCIENCE OF EDUCATION.[1]

WHEN the history of education is examined its chaotic condition becomes manifest. From Aristotle to the men now living, we find the problem of education discussed from many points of view, with many different objects in mind, and under widely different social conditions.

The Greek idea of education and culture was based upon the existence of a privileged class, fed, clothed, and sheltered by the labour of slaves—a real aristocracy devoted to war, art, literature, and luxurious living. The sway of the so-called classic idea of education has been and still is one of the marvels of history. The splendour of Greek art, the brilliancy of Greek literature, and the keenness of Greek logic have held the world as in a trance, unable to break away from its charms—though it has been unsuited to other peoples and other social conditions.

I need not turn the pages of history to name the writers and teachers who have risen in protest or set forth new doctrines. In many cases the new prophet or teacher has had in mind a privileged individual, or a privileged class, the education of a prince, of a nobleman, of a statesman, a monk, a scholar, a gentleman—always an exceptional person or class. The common people, the toilers in the fields and mines, the rank and file of soldiers and sailors, the builders of houses and ships, the craftsmen at looms and benches—for all such there were no educational theories. Such people had no education, and they were supposed to need none beyond that gained in following the occupations or crafts themselves. The assumption was not only that there was no education suited to the common people, but that an interest and participation in the practical arts was degrading to the taste and deadening to the mind. To be sure, a Rabelais or a Rousseau saw abundant reason for rebelling against the scholasticism of the grammarians, and advocated a return to a study of the external world and the methods of controlling and utilising the forces of nature; but even they had no science of education, and they had small following.

THE RECOGNITION OF UTILITY AND SCIENCE.

Francis Bacon, more than any other man, showed the inadequacy of the classic method, fine as it was along certain lines, and the comparative worthlessness of scholasticism, and he opened the eyes of the educated people of his time to the wealth of opportunity for interesting and profitable study in the great laboratory of nature; and better than all else, he set forth the dignity and intellectual value of science study—and he vigorously scouted the idea that the usefulness of scientific truth to any degree detracted from its educational value.

But none of the writers touching on education, with the

[1] Abridged from an address delivered at New York by Prof. C. M. Woodward, of Harvard University, as president of the American Association for the Advancement of Science.

possible exception of Froebel and Pestalozzi, not even Locke, Milton, or Dr. Samuel Johnson, looked at the matter from the scientific standpoint which takes into account: first, the physiological laws which govern the growth and development of the brain; secondly, the exterior stimuli for promoting that growth most successfully; and thirdly, the kind and quantity of knowledge and skill one must have in order to meet most completely the demands of a carefully-selected occupation.

The history of education is full of the records of whims and fancies, of experiments real and imaginary, conducted in order to prove the worthlessness of some theories and the worthiness of others. Every parent has a dimly-defined theory of how his boy ought to be educated, and every teacher looking back over his own experience as a pupil formulates more or less clearly a "system" for the proper education of his pupils. It goes without saying that such theories and so-called systems are generally shallow and inadequate, and I say this with no disrespect to either parent or teacher. I am both a parent and a teacher, and I know only too well how inevitably we theorise and plan, and how inevitably we go astray through lack of scientific guidance.

I do not claim to have formulated the science of education, and I know of no one living who has ventured to make such a claim; and yet I believe that a science of education is possible—and it is high time that we set about a systematic study of its essential features with a view to a formal statement of its main principles.

In his "Tractate on Education" Milton defined a complete and liberal education to be that "which fits a man to perform justly, skilfully, and magnanimously all the offices, private and public, of both peace and war." That is comprehensive enough, yet Milton had in mind only the offices which pertain to the five professions which were then open to liberally educated men, viz., those of the lawyer, the physician, the clergyman, the soldier, and the gentleman. A "gentleman" as defined by Milton was one "who retires himself to the enjoyments of ease and luxury." He had no thought then, as had not the educational writers of ancient or mediæval days any thought, of the sixth estate, the great mass of the people who are coming to be the characteristic force in the civilisation of to-day, viz., those actively doing the world's work, the constructive and distributive, and providing agencies of modern life. We are offering education to-day to every child, a comfortable home to every family, citizenship and self-respect to every graduate of our schools. The education we must study is the universal education of the people. We have put science, and ever more science, into the world's work; we must now give science and culture and skill to the world's workers.

When a privileged class lived in luxury, relying upon the labour of slaves who were purposely and sometimes legally kept uneducated, and when education for culture and the accomplishments of polite society were natural and logical, it was not surprising that philosophers should hold that practical affairs were degrading. Seneca, who lived in the first century, was indignant because Posidonius had so far forgotten himself as to credit philosophy with the invention of the arch and the introduction of the uses of metals.

Philosophy, according to Seneca,[1] "had nothing to do with teaching men how to rear arched roofs over their heads; and they were not concerned with the various uses of metals. She teaches us to be independent of substances, of all mechanical contrivances." man, said the Roman philosopher, lives a nature. Instead of attempting to add to the pl fort of his species, he regretted that his lot w in that golden age when the human race had n against the cold but the skins of wild beasts from the sun but a cave in the earth. To i philosopher any share in the invention or imp a plough, a ship, or a mill was an insult. Tl of such things, wrote Seneca, is drudgery for slaves. Philosophy lies deeper. It is not h teach men how to use their hands. The ob lessons is to form and nourish the soul.

The above wish of Seneca can be fairly para utterance of Matthew Arnold in his famou "Sweetness and Light" (a phrase he bori Swift). Arnold asks, with no evidence of doul superiority of the "brave days of old":

"If England were swallowed up by the sea which of the two, a hundred years hence, excite the love, interest, and admiration of m England of the last twenty years, or the Elizabeth, a time of splendid spiritual effort, bu and our industrial operations depending on coa little developed?"

That is, he would prefer an age when they h no canals, no steam engines, no railroads, no no manhood suffrage, no common schools, few newspapers, and few magazines, because a gre of the people of England could neither read *De gustibus non*—as I always say of Ruskin.

I have quoted Seneca at some length bec a type of a class of people, ancient, mediæval, a who, living like Seneca in great luxury upon th look with disfavour, if not contempt, upon which have, or may have, a positive value in human comforts and in ameliorating human suf

It is not many years since a president of University expressed his regret that the higher n had been found useful in the study of electrical for, said he, "as the utility of a subject ir educational value decreases." Such was the v fathers and the disciples of Greek philosophy fro to Patton, but such was not the view of Lord Lord Macaulay, and Prof. Huxley, nor is it yo trow; certainly it is not mine. I would as soo educational scheme of Machiavelli as that of Se former in all frankness and candour pictured lectual and moral dishonesty and hypocrisy of but his life was relatively clean. As for Senec the praises of virtue and literary culture, and his career by an exhibition of meanness, ingra corruption which threw a blanket of infamy ov advocacy of a philosophy which was to form a the soul.

Is it not evident from the standpoint of the be studied that we need a science of modern Educational values are to be determined, takin sideration age, sex, environment, taste, brain de and probable sphere of usefulness.

The Doctrine of Interest.

Here two important subjects crowd upon m sideration. They are closely related, and I su are strictly modern. I refer to the doctrine of a valuable or as a harmful characteristic of stu the wisdom or the folly of a free election of stu

[1] Epistola 90.

schools and colleges. Consider for a moment we are at sea and how far we have drifted ese two matters—and then you will agree with the need of systematic study and observation may find our bearings and lay our courses

tion of taste and interest is a very perplexing cedent interest is, we all know, quite accidental unsafe guide. The whims of boys and girls ly due to the suggestions of companions and of portunity. It has been my fortune, as well as o warn hundreds of parents of boys from four- hteen years of age not to take seriously their st in particular studies or their haphazard plans ccupation.

ice is inevitable, and plans for the distant future iful as castles in Spain, but nothing can be more n the unfitness of a boy in his teens to select e course of study best suited to his inherited d capacity; and nothing can be more certain practical ignorance of the conditions of a career. Hence his declared preferences and e to be treated with a loving sympathy, as are other youthful fancies, but the wise parent and acher decide to leave open all the avenues of skill, and to hold off the great final choice oy has had time and opportunity to make two discoveries, viz., the intellectual world within e material and spiritual world without. Here e pronunciamento of science, telling us how t we shall attach to the preferences of a boy f fifteen, of eighteen, in regard to the scheme and training which shall enable him to make f himself and be of the most use to his time ion.

d teacher aims to make his subject as interest- ible to his pupils. If they fail to take a lively t, something is wrong; either it is not properly r it is over their heads, or it is clearly of no Natural lack of capacity on the part of the ely a valid reason for failure if the child be normal. I have learned to discredit the truth ld tale that "John has no capacity for" such mathematics, for example. "He never could matics—he takes no interest in algebra and he try," &c. Our higher schools and colleges are g people who protest vigorously that they never ever can understand, or take any pleasure in, y profit from, certain studies. On the other nly believe that every normal person, at least ten of the children and youth at school and fairly master and actually enjoy and profit mathematics, but by every subject in the curri- be properly taught, and under proper conditions d preparation.

more about the importance of interest as a healthy mental growth. I maintain that atten- ecessary to the growth and development of the ercise is to the development of a muscle, and is the condition of a lively attention. When or lecture-room the limit of close attention is lesson or lecture should close, for the educa- s has already stopped. It is not only useless, rse than useless, to go on when the class or uses for any reason to attend. I therefore ucational value of subjects which are not, and ot be, made interesting.

I do not claim that all selected studies can be made equally interesting, or that any one study can be made equally interesting to all pupils, even when the pupils are properly graded; but I do claim that a lively interest is necessary, and that educational progress is very nearly proportional to the strength of that interest. But all educators do not agree with me here.

Athletics.

Never, since the days of Grecian games at Olympia, has physical culture, including field athletics, been so prominent a feature of student life as now. We can truthfully say that to-day athletics is the most conspicuous part of an academic education. Unquestionably the curriculum is out of balance, and a readjustment is necessary. The healthy, normal boy (and, I may add, the healthy, normal girl) requires and enjoys vigorous exercise in the shape of games. While I advocate rational athletics, I deeply deplore semi-gladiatorial exhibitions which put the emphasis in the wrong places, and mislead and demoralise the entire student-body. There has been a drift backward of late years towards a species of barbarism which we had fancied we had outgrown. It becomes scientific men to restore, or better, to establish, a condition of educational equilibrium.

Physiological Psychology.

Perhaps the most valuable contribution to the science of education has come through a study of the laws which obtain in the growth and development of the brain, and the conditions under which that growth and development is most healthy and complete. There are times and seasons for the development of the mental and moral faculties as there are of the physical faculties. While such times and seasons are not precisely the same for all children, we find that all attempts at premature development are not only worthless, but are permanently injurious. Precocity is now regarded as a species of brain deformity. Plants and animals may be forced, and unusual and interesting results may be produced by forcing, but no one of us wishes a son or a daughter to be a prodigy in one direction at the cost of normal development in other directions.

Manual Training.

Closely related with this of brain culture is the subject of manual training, which has recently gained a foothold in our scheme of rational education.

A study of the whole field of education, classical and technical, led me, in 1879, to organise a school for boys of high-school age in which manual training should be combined with intellectual training; to put the liberal arts and the mechanic arts side by side in the same curriculum; to deal simultaneously with material forces and appliances and with spiritual forces and appliances; to cultivate not alone or chiefly the memory and the understanding, the eye to read and the mouth to speak, but the judgment and the executive faculties as well; to extend the humanities so as to include human interests and human activities as they exist now and here. Many wise and excellent educators had grave fears as to the result of the experiment. It was thought that the introduction of tools, machinery, materials, the theories of construction, and draughting might not only break up the orderly programme of the school, but they would lower its intellectual and moral tone. It is now known that all such fears were groundless. Manual training, when properly adapted to the boy's status of brain development, and when incorporated into the daily and weekly programme with due regard to the other essential features, has proved to be a more

valuable element in education than even the most sanguine advocate dared to expect. The moral, intellectual, and economic fruit of this combination, as shown in the characters and careers of the boys who formed the first classes in the pioneer schools, is the best possible evidence of its value. The gloomy predictions made of its effect upon the pupils, and upon our American system of schools, have been forgotten, and early opponents are fast friends and enthusiastic advocates.

This is no place or time for me to give an exposition of manual training; I have preached its gospel elsewhere and often. But I mention it as one of the important matters which must be carefully weighed and adjusted. We must defend it from frivolity on the one hand, and from misdirection and undue emphasis on the other. At first it was suspected that our motives were sordid; that we were likely to degrade our schools, to teach narrow trades, and to turn out "mere mechanics" instead of educated men. On the other hand, a recent report of a Massachusetts commission (for the membership of which I cherish high respect) regards the manual training movement as almost exclusively educational and not sufficiently industrial. I suppose the earlier and the later estimates are still held by many sincere and able teachers. One does not easily lay aside the convictions of a lifetime. The manual training movement stands inevitably as a criticism upon the system of education which came down the ages through the fathers to us, and naturally the latter stands on the defensive. It is also a standing reproof to the old wasteful, unscientific method of teaching to apprentices the theory and uses of tools. It is for educational science to justify the ways of progress which lays aside the idols of the past and erects new temples and opens new kingdoms. Of all the temples, none is finer, none is more glorious, and none should be more scientifically planned and reared than that of education. While no section of this association can enforce the dictates of science, it would be helpful if we were able to establish these two things as true, viz.:

(1) That usefulness does not impair educational values.

(2) That a so-called culture-study like Latin may properly stand side by side with manual training in the curriculum.

We are all pleased (though perhaps surprised) when we learn that a man who reads blue-prints, and can make and use a diamond-point machine-tool, is also a linguist and at home in the calculus; and yet we are more than likely to assume that the boys who are studying the theory and use of tools have little need of literature, and that the student of the classics is wasting his time in a laboratory of the mechanic arts.

The New Education.

The evolution of the fully fledged technical school, or the technical department of the university, has taken place during the last half century, and yet its broad, stimulating, attractive features have a following which bids fair to double the attendance of college and university students. This does not mean that letters and polite learning are being neglected, but that a new constituency is eager for the new education. This new education, though it recognises at all points a high order of usefulness, and contains little that is conventional, is only remotely professional. If ever its curriculum becomes narrow, it is quickly condemned by the best representatives of an education which combines utility with culture. No longer can *the "Levites of culture," as* Huxley calls them, claim to *monopolise liberal education.* The new education can be as liberal as the old, and both can be narrow. F they flourish side by side, and the future shall excellencies of each. An adequate science of century education will evaluate the characteristi and bring the wisdom of the past, not its fool nourish the wisdom of the future.

OXFORD LOCAL EXAMINATI SET SUBJECTS FOR 1908.

Preliminary.

Religious Knowledge.—(*a*) Ezra, Nehemiah, (*b*) (chap. vi. to end), (*c*) Acts (chap. xvii. (*d*) Church Catechism.

English History.—Either the Outlines from 106 or the Outlines from 1399 to 1603, or th from 1603 to 1714, or the Outlines from 17 or the Outlines from 1815 to 1880.

English Author.—Either (*a*) Lamb's "Tales fr speare" (First Series) or (*β*) "Poems of En George and Sidgwick (xi.–xvi., xxv.–xxviii., end). Either (*a*) "Robinson Crusoe," p (*β*) Longfellow's "Hiawatha."

Geography.—(iii) The geography of one of (*a*) E Wales, or (*b*) Scotland and Ireland, or (*c*)

Elementary Latin.—"Tales of the Civil War," Lowe.

Elementary Greek.—Sidgwick's "First Greek Book" (ed. ii.), Exx. 1–35, 51–60.

Elementary French.—Either Pressensé's "Se Tocqueville's "Quinze jours au désert."

Elementary German.—Niebuhr's "Heroengeschi

Junior.

Religious Knowledge.—(*a*) Ezra, Nehemiah, St. Luke, (*c*) Acts (xii. to end), (*d*) Prayer

Ancient History.—Outlines of Greek History fr 323 B.C., with special questions on the Pel War.

English History.—(*a*) Outlines of English Hi 1066 to 1399, with special questions on 1135 to 1216; or (*β*) Outlines of English H 1399 to 1603, with special questions on th tion in England; or (*γ*) the Outlines History from 1603 to 1714, with special q 1688 to 1714; or (*δ*) the Outlines of Engli from 1714 to 1815, with special questio period 1756 to 1783; or (*ε*) Outlines of Engl from 1815 to 1880, with special questions on 1859 to 1880.

Early English History.—Outlines of English H 55 B.C. to 1135 A.D.

Foreign History.—Outlines of General Europe from 1715 to 1795.

English Literature.—Either (*a*) "Poems of by George and Sidgwick, or (*β*) Sh "Richard II." Either (*a*) Shakespeare' Caesar" with North's translation of "Caesar," or (*β*) Shakespeare's "Me Venice," or (*γ*) Scott's "Old Mortality" "Marmion." Either (*a*) Tennyson's "The of Geraint," "Geraint and Enid," "The Arthur," or (*β*) Kingsley's "Westwa Hakluyt's "Voyages of Elizabethan Seame C. R. Beazley), "Voyages of Hawkins, and Drake," "The Oxford Treasury Literature," vol. i. (chap. v. to end), by W. H. Hadow.

eral: (i) Geographical Principles, (ii)
, (iii) *one* of (*a*) Mediterranean region,
region of Asia, (*c*) Atlantic region of
ca.
De Bello Gallico I.; Virgil, Aeneid I.
n, Anabasis I.; "Selections from
ife of Julius Caesar," by du Pontet.
Karr's "Voyage autour de mon jardin"
'Esther."
; "Seines Vaters Sohn" and "Gespenster-

Senior.

dge.—(*a*) Ezra, Nehemiah, Esther, (*b*) St.
cts, (*d*) 1 Corinthians, (*e*) 1 Corinthians
) The Apostles' Creed, together with the
eligion, i.–viii.
—Outlines of Greek History from 445 to
h special questions on the Peloponnesian

—Either (*a*) English History, (i) 1066–1399,
1603, or (iii) 1603–1714, or (iv) 1714–1815,
880.
story.—Outlines from 55 B.C. to 1135 A.D.
—Outlines of General European History
1795.
ture.—Either (*a*) Milton's "Comus,"
' "Il Penseroso," "Sonnets," or (*β*)
's "Richard II." Either (*a*) Shake-
ılius Caesar" with North's translation of
Caesar," or (*β*) Scott's "Old Mortality,"
tt's "Marmion." Either (*a*) Bacon's
), or (*β*) "Selections from Wordsworth,"
Arnold (omitting "Reflective and Elegiac
or (*γ*) Tennyson's "The Coming of
The Marriage of Geraint," "Geraint and
he Passing of Arthur." Either (*a*)
Voyages of Elizabethan Seamen" (ed. by
y), "Voyages of Hawkins, Frobisher, and
(*β*) "Essays on Addison," by Macaulay
ray (ed. by G. E. Hadow), "The Oxford
English Literature," vol. i., by G. E.
Hadow.
Principles of Geography, (ii) British
) *one* of (*a*) Europe, (*b*) Asia, (*c*) North
luding West Indies).
ar, De Bello Gallico I., II., or (*β*) Virgil,
II. Either Livy XXI. or Horace, Odes

ophon, Anabasis I., II., or (*β*) Euripides,
ither Thucydides IV., or Sophocles, Ajax.

Y AND CURRENT EVENTS.

ferring recently in these columns to the
by the president of the Indian National
pointed out how it was borrowed from
ements of our constitution and its history,
e it seemed as applied to the "people" of
have to hand the last of Lord Cromer's
ports on Egypt and the rule of that country
himself in his capacity as British repre-
rge part of that report is devoted to an
the principles and methods of the Egyptian
party. He examines how far they consist
, *i.e.*, how far they are religious in char-
s that this feature is perhaps predominant.
nts out the relations of the movement with
desires for or against the power of the Turkish Sultan, and how complicated the whole agitation is. But the parallel with the Indian National Congress movement is seen in this, that Lord Cromer attributes the anti-European movement partly to the very success of European intervention in the country, and to the consequent well-being which gives the leisure necessary for agitation. Only from Europe comes the desire to share in the functions of government which now begins to show itself in Oriental countries.

BUT the difficulty of diagnosing these diseases (shall we call them?) of the State is not confined to Egypt. The last year or two have seen movements in several countries that have an outward resemblance, but which we should do well to refer to totally different causes. In Hungary, *e.g.*, events are happening which are specially interesting to school teachers. The emoluments of teachers in that country are "to depend in future on their zeal in extending the knowledge of the Magyar language and in developing among non-Magyar children sentiments of devotion towards the Magyar State." In 1848 the Magyars were defeated in consequence of Austria being able to rouse against them the surrounding nations whom they had oppressed in their hour of triumph. But history is not always determined on the battle-field, and now, in the uneasy relations between Magyar and non-Magyar in the Austro-Hungarian empire, other methods are to be tried to win the final victory for the Magyar nation. Will they succeed any better than the old ones?

"HISTORY is not always determined on the battle-field." And we turn to South Africa, where Great-Britain-and-Ireland is carrying out the policy which she began to learn a hundred years ago, and is granting self-government, even responsible government, to that mixture of races which we now call the Transvaal Colony. It is beginning to be possible to have a deliberate opinion on the wisdom and policy of the last Boer war, and on the long series of events which led up to it. That war apparently settled that the Boer was not to have the last word in Transvaal and South African policy. At least it anticipated by a year or two the end of a dominating person. But now we have advanced at a bound from the methods of seventeenth-century England and of South American republics to the methods of nineteenth- and twentieth-century Great Britain. The fight still continues, but it is to be at the polls only, not on the battle-field, and Louis Botha, who was our enemy not many years ago, is now representing one of *our* colonies in *our* Colonial Conference.

AND, finally, we note that in these days, when European influence is spreading all over the world, this "national" movement, which has so many causes and so many features, is shaping itself here and there in endeavours, more or less successful, to have representative institutions similar to our Brito-Irish Parliament. Russia is struggling to get a Duma satisfactorily at work; even Persia and Afghanistan are making efforts in the same direction. What are the advantages of this method of voicing a nation's wishes over those of other methods, such as that of Israel when they sent Ehud to Eglon, or that of Greeks and Bulgarians in Macedonia, or that of Raisuli and others in Morocco? We in this country are familiar with its disadvantages, the slowness and difficulty of changing a government, even one which has become unpopular; and we are not so quick to perceive that it is of great advantage to the rulers, if only they will listen to it. But it seems difficult to make it work where the country is too big, *i.e.*, has too many rival nations who want to fight rather than talk and vote.

ITEMS OF INTEREST.

GENERAL.

THE Federal Conference on Education in connection with the League of the Empire, to which we have already directed attention in these columns (vol. viii., p. 469), will be held in London from May 24th to June 1st. A very full programme has been arranged. The business subjects include: (*a*) Scheme proposed by the League of the Empire for federation of the Empire in education; (*b*) official recognition of a common central office for federal education; (*c*) future federal education conferences—(i) suggested places of meeting of heads of departments and other educationists, (ii) dates. The educational subjects to be discussed are very numerous, and among them are included: (*a*) Teachers—(i) comparison of (α) the provisions for the supply and the training of elementary-school teachers, and of (β) the conditions of their work in the United Kingdom and other countries of the Empire and Crown colonies; (ii) similar comparison in the case of secondary-school teachers; (iii) practicability of temporary interchange of teachers and of inspectors between the United Kingdom and other countries of the Empire and Crown colonies. (*b*) The relations between secondary and primary schools in the various countries of the Empire. (*c*) Means of establishing a system of mutual recognition of equivalent standards of attainment in the several countries of the Empire in connection with primary, secondary, and university education. (*d*) Co-operation in educational publications. (*e*) Co-operation in school work. (*f*) School subjects. (*g*) Education of non-British races. (*h*) Other subjects, such as metric weights and measures and school gardens, which may be discussed if time allows. Full particulars concerning the conference may be obtained from the honorary secretary to the League, Mrs. Ord Marshall, Caxton Hall, Westminster, S.W.

WE have received a copy of a recommendation for revised syllabuses in mathematics recently placed before the Board of Education by the Council of the Association of Teachers in Technical Institutions. That such a recommendation should have any weight with the Board of Education is a significant sign of the times; that it has weight is shown by the recent revision of the chemistry syllabuses, due to action by the Council of the A.T.T.I. While we are heartily in accord with the idea that examiners are for the public good, and not the public for the good of examining bodies, we cannot altogether agree with the proposed syllabus or some of the leading principles which underlie it. It is stated as one of these principles "that the inclusion of practical mathematics as a separate subject releases the Board from the necessity for considering purely technical students." Our idea is that the more purely theoretical mathematics the technical student can be coaxed to absorb the better for him; not so much, perhaps, for the facts and facility he obtains, but for the logical training he receives. Anyway, the technical student *cannot* be overlooked. A student crammed with facts and formulæ only is not likely to become a man who "wants to know the reason why." If, on the other hand, the syllabus is designed for "mathematicians," why the necessity of "problems that are simple and in many cases numerical"?

WE doubt whether the syllabus can in any way be said to "indicate the trend of mathematical thought in this country," even if it does that of teachers in technical *institutions*. We are convinced that many would prefer *the present scheme of the* Board of Education even as it stands, and in a greater degree if the algebr metry were revised. As the Council recon whole of the Cambridge syllabus (easy treatmen less) for Stage I., together with about five le on algebra—"to linear equations and graphs this being usually treated as generalised ar examples in geometry—it is evident that the very badly balanced. If the Cambridge adopted for Stages I. and II., it should be sp sections, the equivalent of Euclid, Books I. and out 35, 36, 37) being retained for Stage I. a for Stage II. Finally, it must be remen assistant-masters in secondary schools under should surely have a say in this matter, and tion of any memorial from them has yet com notice.

THE executive committee of the English appointed at the general meeting held last Jan office for the present year, has held a number and has now issued in revised form the prosp association for 1907, including a statem objects, methods, and constitution, and a list Dr. Butler, Master of Trinity College, Cam been elected first president, and will give an the next general meeting. A sub-committe appointed to deal with the publications of the It has been arranged that for the present th mainly in the form of leaflets. A list of subj on the study of English language and literatu drawn up, and leaflets upon these subjects ar pared. Local branches of the association are b at Liverpool, Birmingham, and Bristol. All co relating to local branches (except in Scotland addressed to Mr. G. E. S. Coxhead, the Gram Hinckley. The Scottish branch of the associat meetings in Edinburgh, Dundee, and other c hon. secretary is Mr. J. I. Low, the High Sch Copies of the prospectus of the association a application for membership (otherwise than local branches) can be obtained from the ho Miss J. Laidler, Goldsmiths' College, New C communications should be addressed to the h secretary, Prof. F. S. Boas, Cranford, Bickley,

A MAY DAY of Shakespeare's time, in con the Shakespeare commemoration organised by Shakespeare League in aid of the Guild of the Things, was held at King's College, London, o The Duchess of St. Albans presided. T children from the Bermondsey University Settl of Play took part in the pageant, dressed morris dancers, courtiers and ladies of the per bargemen, the hobby horse, clown, Maid Mari Will Scarlet, Little John, Robin Hood, Tom Friar Tuck, &c.; and the programme include ing of the Maypole to music of the Elizabe the traditional Visit of Queen Elizabeth to Leicester, the famous "Greensleeves" Dan Games and Folk Songs, the Morris Dance an

THE seventh biennial congress of the Wor Christian Federation was held at Tokyo fro to 7th. The congress was one of particular it was the first international congress ever h purpose in Asia. Five hundred delegates, of hundred were Asiatics, representing thirty dif tries, took part in the congress. The Britis included Sir Alexander Simpson, of Edinburgh Macalister, of Cambridge. Other persons

were the Hon. John Wanamaker, Sir Harnam
nd Mr. J. R. Mott, general secretary of the
n. The World's Student Christian Federation,
s a membership of more than 113,000 students
ssors, aims at the promotion of Christian life
in the universities of the world; it was founded
and is rapidly becoming one of the strongest
in university life.

N visitors to Europe are apt to talk as if all
f every social grade were educated together in
schools of the United States. The report of the
ommission, with its reference to the son of the
learning side by side with the labourer's child,
some readers the idea that private schools are
in the States, and that the American parent never
lect academy in preference to the public school.
contained in the second volume of the most
port of the U.S. Commissioner of Education,
show that of 822,235 boys and girls attending
schools in the United States during 1903–4,
re being educated in private schools. Of 36,326
nd mistresses engaged in American secondary
ring 1903–4, 9,566 were at work in private and
ublic schools. But whereas the average number
per teacher in the public secondary schools was
r, there was one teacher to every ten pupils in
schools.

ort of the U.S. Commissioner throws much light,
the relative popularity in American schools of the
bjects of the secondary-school curriculum. The
lar subject is algebra, which appears to include
in arithmetic done by the pupils of secondary
6 per cent. of the total number of pupils in these
udy this subject. The subjects which come next
ity are as follows, with the percentage of the
er of students in each case: Latin, 50 per cent.;
terature, 48 per cent.; rhetoric, 45 per cent.;
her than that of the United States), 39 per cent.;
etry, 27 per cent. The most popular subject of
physiology with 23 per cent. of the total number
, and physics comes next with 16 per cent. The
ects appear to meet with the approval of boys
qually. It seems clear that American authorities
the development of what are often called "cul-
jects in secondary schools, and do their best to
erious work in science for the technical grade.

ONAL methods are, as a rule, purely empirical.
s of this or that kind of study are advocated by
ophets, and teachers learn by experience which
produce the best results, whether measured by
ns or any other standard, but there is as yet
onal science. Education is, indeed, in much the
as natural history was before Darwin found
organic evolution: much material is available,
mple principle which will gather together all the
ed threads and be to education what the doctrine
on has been to biology remains undiscovered;
covered, it is not generally accepted. In an
n "Child-nature and Education," recently de-
Miss Hoskyns-Abrahall before the Manchester
rd Sanitary Association, education is considered
biological standpoint—biology being taken to
physiology, anthropology, bio-chemistry, bio-
nd other branches of knowledge concerned with
nd mental development. It can easily be under-
t, viewed in this way, the methods at present
in nurseries, schools, and colleges are mostly
without scientific justification. Our educational system is not founded upon the evolutionary principle that the development of the individual is the miniature history of the species, and therefore it lacks coherence. Miss Abrahall describes the course which the biologist-educator would adopt in order to promote the growth of the best features and faculties of children at various ages. Theoretically, her scheme is sound enough, but the changes involved are of such a revolutionary character that it is too much to expect that it will meet with general acceptance in our day and generation. But though the scheme may be considered impracticable, Miss Abrahall's paper is none the less suggestive, and is a noteworthy contribution to educational science.

A COURSE for helping women desirous of extending their knowledge of nature-study will be held at the Horticultural College, Swanley, from July 27th to August 10th. Most of the instruction will be given (weather permitting) out of doors, rambles in the country under the guidance of experienced teachers being the chief feature. Miss Hibbert-Ware, science mistress, Queen Margaret's School, Scarborough, and Mr. Tabor, resident science lecturer, will lead combined excursions for studying birds, pond life, insects, wild flowers, trees, grasses, &c., in their different environments. The college gardens, greenhouses, orchards, farm, and fruit-preserving appliances will be in working order, and students will be able to obtain an insight into the work carried on in each department. Miss M. Agar will give demonstrations and instructions in simple gardening, and on the care of school gardens. Demonstrations in dairying and poultry keeping will be given by Miss M. Dawson, who will explain the chief points of farm operations during the year. So far as possible, the open-air studies will take place within easy distance of the college, but excursions will be arranged to districts with varying soils and climate, and the accompanying variety of natural objects. Students having bicycles are advised to take them. It is hoped to combine the natural-history excursions with points of antiquarian, artistic, and other interest in outlying districts, and endeavour will be made to render the course useful, both for home life and school work. Applications for forms of entrance and further details may be made to the Principal at the college.

THE detailed prospectus of the Holiday Course for Foreigners arranged by the University of London has now been issued, and the list of lectures is very attractive. Prof. Hall Griffin will give seven lectures on Tennyson and Browning, and Mr. Allen Walker will give a course on Historic London, in connection with which there will be visits to typical buildings. Mr. Fuhrken, lecturer at Gothenburg, will discuss Mr. Bernard Shaw, whose dramas have recently attracted much attention on the Continent; he will also speak of English university life, in connection with the visit to Cambridge. Mr. Alfred Milnes has promised three lectures on economic subjects; Mr. John Lea will give a lantern lecture on the Painter as Moralist; Mr. Classen, Lector at Upsala, will speak on English educational methods and some social reforms of the nineteenth century; and Mr. H. W. Atkinson will give a lantern lecture on Life in South Africa. Prof. Rippmann, the director of the course, will lecture on the Phonetics of Modern English. The prospectus and all further particulars can be obtained on application to the Registrar, University Extension Board, University of London, South Kensington, London, S.W.; the words "Director of the Holiday Course" should be added in the left top corner.

CANDIDATES who wish to sit for the coming examination for appointments as assistants of Excise must send in applications on or before May 9th. This examination is the first under the new scheme (vol. viii., p. 193). The salaries and age limits are shown in THE SCHOOL WORLD, vol. viii., p. 430.

AN examination for two appointments in the Army Accounts Department and for one in the Exchequer and Audit Department will commence on June 4th. The last day for making application is May 15th. This is the first examination under the regulations explained in vol. viii., pp. 356 and 430. Candidates must be between 18 and 19½ on May 1st. The salary during the period of probation is £100 a year; the departments are new and homogeneous, and hence offer very good prospects.

JUNE 20TH is the last date for application for admission to the competition in July for appointments as assistant-clerks (abstractors). Age limits and prospects have been given in THE SCHOOL WORLD, vol. viii., p. 227.

SCOTTISH.

THE four Provincial Committees on the Training of Teachers have adopted, after very little consideration, certain proposals bearing on curricula, bursaries, and periods of service for students in training. The whole scheme, so far as it has been made known to the public, is vitiated by the undue importance attached to the professional subjects. Under the old *régime* it is admitted that the practical side was too little regarded, but now the wheel has turned full circle in the opposite direction, and culture studies have gone by the board altogether. The position taken up seems to be that students, having passed successfully through the full curriculum of a secondary school, should, on entering the training colleges, be ready for a purely technical course as a preparation for school work. No greater fallacy could possibly be imagined, and the whole scheme seems based on the old heresy that the less a primary teacher knows the better he will teach. If students in training entered the colleges possessed of the full leaving certificate something might be said for the position taken up by the Provincial Committees. But it is notorious that the great majority will never attain to that level, and to regard their education as completed at the comparatively paltry standard of the junior certificate is to court disaster for the public-school education of Scotland, which has been built up on quite other foundations than these.

MR. STRUTHERS, the secretary to the Scotch Education Department, has issued a summary of recommendations in regard to the pronunciation of Latin as drawn up by the Classical Association of Scotland. Henceforward, unless formal notification to the contrary be made beforehand, and unless good reason can be shown for departure from the accepted convention, the recommendations of the Classical Association will be looked for in all schools under Government inspection, though the new pronunciation need not be introduced in the senior classes. It is further pointed out that the aspect of Latin pronunciation most liable to be neglected in Scottish schools is quantity—the very element that is of supreme importance for a proper understanding of Latin poetry, as well as for a due appreciation of some of the highest qualities of Latin prose style.

THE spring meeting of the Classical Association was held this year in Aberdeen. Prof. Ramsay, who has been persuaded to continue as president of the association, discussed the question of "unseens" as against prescribed work in classics, and he advocated that in school examinations, at least, unseens should be very sparingly used. The undue stress laid upon unseens has led t criminate use of selections and extracts, and to of the great masterpieces of literature. As ar to unseens, Prof. Ramsay thought that examin should announce beforehand that the translati taken from a fairly wide range of books a The difficulty in working such a scheme w the scope of the reading might be so wide slipshod work in order to cover the ground, o that the old memory translations would once into vogue. The ideal plan is to limit the uns passages, so that they may be within the po pupil who has had a good grounding in the Latin syntax, and whose reading has given mand of a fair vocabulary. Certainly some p quired against the absurdly difficult charac unseens that now appear in almost all examinat

THE first annual general meeting of the Sco of the English Association was held at the G versity. Prof. Saintsbury presided over a l ance that promised well for the future of the Principal Williams, of Dundas Vale Training speaking of the aims of the association, put i research work into the different forms of the guage. He pointed out that in a few years m matter bearing on Lowland Scotch would peared, and it might well fall within the pro branch to collect, systematise, and preserve t direction of grammar, composition, and litera number of problems awaited discussion and settl as the place and time to be given to phoneti methods for teaching composition, and the ext rhetoric should be taught. There also remai series of vital questions in regard to the teachi ture. For instance, to what extent were th teach the history of literature; how were th settle what kinds of literature should be taught how far were they to allow the pupil's indivi guide his choice of home reading; and how f the teacher's power to mould the pupil's tast

MR. J. C. SMITH, H.M. inspector of schc paper on the "Teaching of Poetry." He e opinion that poetry was an end in itself, and w good things of life that required no more justi the colour of a sunset or the intercourse of teaching poetry he advocated that attention sho to form and rhythm rather than to matter, should be dealt with from its æsthetic side, moral influence to make itself felt in its own v afternoon, Prof. Saintsbury delivered an addre history of the English language as an organ of literature."

MR. ALEXANDER URE, M.P., Solicitor-Gener land, in addressing the congress of class teache referred to the subject of superannuation. H this question was perennially dear to the heart master, and seemed to afford them a weird, my ineffable joy in the contemplation of their latt this subject would soon come before the House for consideration, he felt unable to deal wit detail. He might say, however, that he had his mind in regard to it, that he still regarded Superannuation Act as a "poor, mean, shab return for long and arduous services." He opinion that the teacher whose life work was a was entitled, at least, to as much consideratio man or a policeman, and every endeavour to just demands would have his steady support.

IRISH.

rmediate examinations will commence this year oth, and continue without interruption every until June 22nd. As this leaves a clear week end of June, it would have been preferable to examinations another week. The Irish school with the Intermediate examinations, and very reopen before the beginning of September or ek in August, so that the summer vacation in is unduly prolonged. While it would cause nvenience to postpone the examinations until should be held as late as possible in June. The follows in the main the arrangement of last three papers every day of two hours each, -12, 1.30–3.30, and 4–6. The one exception is in English literature and composition, which is hours and a half. There are some changes in of subjects calculated to obviate the criticisms .

nsultative Committee consisting of three heads Catholic and three heads of Protestant schools Easter vacation in a united, and it is believed ssful, attempt to persuade the Government that n the income of the Intermediate Board is a g for intermediate schools and teachers, whose largely affected by it. The request made is overnment should make good the loss to the e Board due to the increased temperance of and the consequent fall in the "whisky" unting during the past two years to £22,000, guarantee that the income of the Board should low the level of years like 1903 and 1904. The was anxious to form a deputation to wait upon Chief Secretary, but this was refused by the ereupon the leaders of the two Irish political s waited upon and their sympathy secured, and nformal interview with Mr. Birrell took place factory results. The Intermediate Board has, by a reinvestment of some of its funds in raising its income for the present year by ooo, but this does not make good the very ses referred to above. Why cannot the Con- ommittee agree also upon a plan of reform for e education in Ireland and urge it upon the t?

RELL has made two important speeches on Irish The first was just before Easter in a debate se of Commons on primary education, and the at the Congress of National Teachers in the in Dublin in Easter week. The latter was interesting as being his first public speech . The two speeches taken together are useful ing some definite promises and some pregnant In the House of Commons three or four specific e raised, and on one of these only was a definite ent made, and this was not completely satis- The tone, however, of Mr. Birrell's speeches ise of serious tackling of the educational problem rety. To remedy the scandalous state of school the Treasury has agreed to provide £40,000 a hree years for building grants; the demand was ooo a year for five years. Mr. Birrell pointed rish education was expensive owing to the multi- small schools, many of which should be ted. He promised to remedy the political dis- f the teachers, and he admitted that the scale alaries was *meagre and insufficient*. A national teacher starts with £56 a year, soars after many years of hard work to £75 or £80, and then, after thirty-six years' service, with extraordinary good luck he might, if he obtained the headmastership of one of the few large schools, look forward to £150 or £175 a year. Then, again, there was an urgent need for bursaries to carry children from the primary to the secondary school.

How to remedy the needs? Ireland must work out her own educational salvation. Mr. Birrell urged on all parties to come to some agreement as to what form of educational control they wanted. It was of little use to agitate for the abolition of the National Board unless they knew what they intended to put in its place. But under the Devolution scheme Ireland would be given the opportunity to set its educational house in order and to remodel its system of primary and secondary education. His idea was that all the money due to Ireland should be put into one common fund, and that it should then be distributed according to the needs of the country. The first need was the improvement of education.

WHILE Mr. Birrell is thus outlining his ideas on school education it has been stated with some show of authority that he has abandoned his predecessor's scheme of university education. Mr. Birrell has, however, lost no time in replying that the Bill will be introduced as soon as possible—a somewhat vague expression, seeing that the Parliamentary session is now well advanced—and will proceed upon Mr. Bryce's lines, with any necessary modifications. But Mr. Bryce's proposals have nowhere roused great enthusiasm even in Ireland, and have met with vigorous opposition and criticism, not only in Trinity College, but in all the sister universities of England, Scotland, and Wales, so that to carry them through Parliament without modification would seem impossible. It has been generally stated that the Bill would limit itself to the establishment only of a new Roman Catholic college under Dublin University, leaving the Queen's Colleges and the Royal as they are. But this is likely to meet with almost equal opposition.

WELSH.

THE Welsh Revolt Committee collected over £8,000, and more than £4,600 remains in its hands. Besides this, however, there is probably altogether a considerable amount still with the local and denominational treasurers yet to be passed on to the Central Committee. £2,400 has been paid to support the revolt in Merionethshire, and another £500 has been voted. The revolt schools in Montgomeryshire have received £358, and £1,059 has been paid for administrative expenses, including cost of meetings, &c. A claim is now made by Merionethshire that the emergency schools called into existence by the revolt should be placed on a permanent footing out of the balance of the funds. On the other hand, it is argued that the revolt is not dead. Yet the Merionethshire representatives warn the Central Committee that if the subsidies to the emergency schools are discontinued many children will be compelled to return to the schools from which they were withdrawn.

THE staffing of the elementary schools in Wales is a serious problem. In the Welshport district, recently, the managers of one of the schools selected from a number of applications a candidate, a girl eighteen years of age, who had only passed the sixth standard, and recommended her as a supplemental teacher. The applications were described as "most wretched." The salary offered appears to be £25 a year, without food or lodging. The recommendation of the managers was adopted. We must say that

intermediate education in Wales is indeed remarkable, if it can accomplish its work and make up for the foundation of education as given in elementary schools with staffing of this nature. If this state of things continues, the question will arise, Why should not the intermediate schools be multiplied so as to undertake the elementary as well as higher education of their districts?

AT a prize-day gathering at Machynlleth, in Montgomeryshire, Mr. J. D. Rees, M.P., observed: "The Welsh people had a keener appreciation of education and a stronger desire to avail themselves of it than the people of England and Scotland." This is what is constantly being said in Wales, and no wonder the Welsh people think it. Still, on the whole, a good criterion of educational efficiency is the state of the teacher. Let us return to the £25 a year of the previous note. This amounts, let us say, to ten shillings a week. Let us say there are twenty-five working hours to the week. The payment amounts to less than 5*d.* an hour. Whilst such instances as this occur, it cannot be said that there is a keen appreciation of the educator, however much the advantages of education are recognised in Wales. Nor is passing the sixth standard a guarantee of efficiency for the training of pupils. Would a domestic servant be wise to exchange for the post of teacher in the school referred to? If not, why should not the next public speaker dilate on the appreciation of the Welsh for domestic service as nobler than that of teaching schoolboys and schoolgirls? Is this the state of things a responsible public educational authority should be willing either to inaugurate or maintain? Indeed, when education is compulsory, and the appreciation of it described as so keen, the only logical position would be a revolt of parents against the ratepayers, and a demand for efficient teachers, whatever the cost. To compel parents to send children to inefficient teachers is tyranny—even if it is done by order of democratic educational (save the mark!) authorities.

AT Llangollen county school, progress is reported. The governors are making provision for school gardens, and for giving the pupils, both boys and girls, systematic scientific instruction in the management of them. The governors have also chosen a sub-committee to consider the desirability and practicability of providing a hostel for pupils. Throughout Wales, in connection with county schools, there is in the country districts a *clientèle* larger or smaller of pupils who live in approved lodgings and go home at the week-ends. But the Llangollen school governors do not consider this method makes sufficient provision for uniform supervision for school purposes. No doubt in schools of high reputation, and in the midst of healthy conditions, the "outside" element is one which may be expected to increase. At the same time, the school must be an organic whole. The lowness of fees is often a cause of attraction to the schools. Thus to the Wrexham county school, which is well known for its success, outsiders have been attracted, and have now become a difficulty. It is stated that the governors are spending £500 on the education of these outsiders, and it is complained that this is not fair to the ratepayers.

French Readings in Science. Edited by de V. Payen-Payne. vii+230 pp. (Blackie.) 3*s.* 6*d.*—Mr. Payen-Payne is to be congratulated on an exceptionally satisfactory piece of work. The selection of passages is excellent, and the notes are full of interesting information. We know of no better French reader for science students.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Das wissenschaftliche Studium der deutsc und Literatur. Von Dr. Heinz Hungerl (Heidelberg: Ficker.) 1*s.* 3*d.*—This booklet as a guide for students. It must be confess is little need for it in England, as we have excellent book with its valuable bibliography, into account books of special value to the *En* of German. The list of books recommer supplementing; thus Klee's "Grundzüge d Literatur" is far better than Kluge's book, of Graff's dictionary, which is very difficu Schade should have been mentioned. Freytag isten" should have found a place among (chapter xx.). Nothing is said about metho ing. The frequent use of *entbehrliche* is distressing; we find *Direktive, Hauptak nexus, Exkursionen, interpretieren.* Misprints common.

G. Frenssen, Gravelotte. Edited by Otto 66 pp. (Ginn.) 1*s.*—"Gravelotte" is cha Frenssen's striking novel "Jörn Uhl." It is stiff piece of German, racy and idiomatic; c pupils will be able to appreciate it. The edi his work very satisfactorily. The introduct the notes are adequate, and the vocabulary complete.

W. von Hillern, Höher als die Kirche. Edi Eastman. x+107 pp. (Ginn.) 1*s.* 6*d.*—This short story, with satisfactory notes, passages lation, and a vocabulary which seems to be c recommend the book as a reader for pupils or fourth year of instruction.

Froschkönig. Von Henny Koch. 36 pp. *vom Dornröschen.* Von Henny Koch. 30 p 4*d.* each.—Miss Koch is to be congratulated in dramatising these two fairy tales. Her v runs smoothly, and she has a distinct gift work. The scenery suggested is somewhat e children have a lively imagination, and may enjoy these plays even if the stage is one of s simplicity. A few lapses into the old orth doubtless be corrected in the second edition.

Vier kleine Lustspiele. By Käte Weber. (Arnold.) 1*s.* 6*d.*—These plays vary much The first and second do not appeal to us, a altogether too farcical; the others might do reading. The introduction of a French lady play is not in the best taste, as she is burles not do our children any good to speak bad G with French, especially when Mademoiselle d to know her own language (she says *une gr* on p. 7). Objection may also be raised to t *Ich hatt' einen Kameraden* on p. 51. We hardly any misprints; *nun* (p. 13, l. 3) shou *uns.* There are no notes, but a vocabulary markably incomplete.

Bechstein's Märchen. Edited by Fried 48 pp. (Blackie.) 6*d.*—From Bechstein's mar six have been selected, and supplied with s Although some of the stories are very sad, and the booklet may be recommended for use w their third year of instruction.

Classics.

s of the Classical Association, October, 1906. urray.) 2*s.* 6*d.* net. *The Year's Work in udies*, 1906. By Various Authors. Edited by D. Rouse. xii+140 pp. (Murray.) 2*s.* 6*d.* two volumes taken together give an excellent splendid work by the Classical Association in most salient features of the former are Prof. aper on "An Unnoticed Aspect of Virgil's" and the report and discussion on "The ronunciation of Latin." The latter, as the f its kind, should attract widespread notice. n every branch of classical study a *résumé* of during the past year written by nineteen As a year-book it will prove indispensable to all who wish to keep abreast of modern ot only outsiders, but classical students, will to find in what an amazing degree classical present vital and progressive. The dead ere prove themselves to be most wonderfully is an introduction by Prof. Butcher; and the the chapters are: The Teaching of Classics Greek Excavation, Italian Excavation, Pre-haeology, Sculpture and other Arts, Numis-k Mythology and Religion, Roman Mythology n, Private Antiquities, The Greek Worship, iptions, Latin Inscriptions, Greek History, ory, Comparative Philology, Grammar, Textual d Palaeography, Papyri, Literature, Roman ere is only space here to touch upon a very ng points. Besides excavations in Crete and here is the discovery of the shrine of Artemis arta, where the youths were scourged, followed o by the discovery of the temple of Athena Dr. Dörpfeld thinks he has discovered the dusseus. Prof. Furtwängler's "Aegina" has d our ideas of the pediments of the temple goddess Aphaia (not Athena). Dr. Haeberlin y which will change "our whole conception est money of Rome." The *Lares* are main-Vissowa to be deities of the arable land of the w historian of the first importance has been t Oxyrhynchus for the early fourth century B.C. ew ideas on Hannibal, Gaius Gracchus, and entum Ancyranum. Old authors have been life," the first five satires of Lucilius, and f Menander.

nalium Libri: recognovit brevique adnotatione ruxit C. D. Fisher. Scriptorum Classic-theca Oxoniensis. No paging. Cloth, 6*s.*; This book is very welcome. It is possible now, time, to have the Annals in one handy volume, , and with the necessary critical notes. The ost of its series, is a sober conservative text e best MSS. The basis of this book is, of Medicean MSS., which the editor follows even than his predecessors. In a few places he s authority for conjecture or other readings, nclined to think that he has been too free in of these, which he enumerates. Two con-his own find places: xi. 23, *perissent satis* for M; xvi. 22, *respuit* for *respernit* M, *res spernit* is a scholarly and cautious piece of work, deserves a place in this good series.

Reddenda. Vol. i. Being Latin Extracts for nslation. Selected by C. S. Jerram. xxiv+120 Ditto. Vol. ii. Greek Extracts. xx+213 pp. 3*s.* (Clarendon Press.)—Jerram's "Anglice Reddenda" is a classic of its kind, and we need say nothing of a book so well known. In this edition the Latin and Greek extracts are published separately.

C. Plini Secundi Epistularum Liber Sextus. Edited by J. D. Duff. xx+94 pp. (Pitt Press.) 2*s.* 6*d.*—This edition of the sixth book of Pliny's Letters is preceded by a Life of Pliny and a brief criticism of the Letters, and there are fifty-six pages of notes (to thirty-four of text). For school work the notes are too many, and not altogether judicious. Thus we may cite as examples of injudicious notes the following: "*cupio*, I am anxious, is much stronger than *volo*" (p. 64); "*posco*, begin the clause with 'but' in English" (p. 67); "*videmus*, we are able to see" (p. 69); "*plures*, the majority" (p. 67); and so forth. As in most of the modern school books, it would seem that the editor has said to himself, "Go to, let us write notes," and he has done so, without asking what the master really wants to tell his class before they prepare the work. We cannot say that it is a good book from the schoolmaster's standpoint; it does, however, contain a useful assortment of information for those who work by themselves.

Livy: the Second Macedonian War. By W. T. Helmsley and J. Aston. vi+96 pp. Vocabulary. (Blackie's Illustrated Classics.) 1*s.* 6*d.*—This book contains extracts from Livy, Books XXXI. to XXXIII., forming a series of sixty short chapters. The style is Livy's, the text not having been simplified to suit beginners (as is done, for example, in Mr. Edwards's "Stories of the Kings"). Each chapter, however, has an English summary prefixed, and the vocabulary at the end shows that the book is meant for beginners. At least, it ought to show this; but in view of the carelessness of editors in such matters, we do not feel confident what these editors did mean. Certainly the boy who can do Livy ought to use a dictionary; special vocabularies are not for him. Editors are learning something, however: the notes are commendably short and business-like. We are still told sometimes that this is a "possessive genitive" or that "partitive genitive," but we have little fault to find with the notes. Some of the translations are misleading (*in parte* tr. "a sharer," p. 45; *et* tr. "when," p. 65). One or two real difficulties are not explained; thus the note on *statim*, ch. x.[14], ought to add that the adjectival adverb must be so placed between connected words as to show its meaning. One note is a puzzle (iii.[1]): "*anno* 551*mo*. As the date of the birth of Christ is, through a mistake, not A.D. 1 but B.C. 4, this would be the year B.C. 200." Is A.D. 1, then, not A.D. 1, but B.C. 4?

English.

Archbishop Trench's Select Glossary. By Dr. N. Smythe Palmer. 230 pp. (Routledge.) 2*s.* 6*d.*—An addition to the "English Library" issued by this firm of publishers. Dr. Palmer's work has been confined to additional notes, which are enclosed in brackets; but the book in its present form is most interesting and valuable to the student of English.

Shakespeare's (1) *Tragedies*, 981 pp; (2) *Comedies*, 848 pp; (3) *Histories and Poems*, 888 pp. (Dent.) 1*s.* each net.—Everybody ought to know that this edition of Shakespeare is in the market. It forms part of Messrs. Dent's wonderful "Everyman's Library." Everything is in good taste, and the elegance and cheapness of these volumes ought to recommend them to every section of the reading public.

Scott's Old Mortality. By Hereford B. George. xi+431 pp. (Oxford Press.) 2*s.*—An excellent edition of what is certainly one of Scott's greatest successes. The novelist's own notes, or all those which are not of merely antiquarian value, appear at the bottom of the pages. The editor appends some of his own.

Goldsmith's Traveller and Deserted Village. xx+84 pp. (Cambridge University Press.) 1*s.* 6*d.*—A small volume, but containing in a highly condensed form the results of several years' practical work in dealing with these poems of Goldsmith.

Ivanhoe (1*s.* 6*d.*) and *A Tale of Two Cities* (1*s.* 6*d.*) are published by Mr. Edward Arnold in his English Literature Series. The books are abridged and edited, and the work is done well. They are a little scholastic in appearance, notwithstanding the pictures: but this may be said of nearly all school books.

A First Book of English Literature (2*s.* 6*d.*), by Miss C. L. Thomson (Horace Marshall), is admirable, but it is a pity that we could not have ten times the number of illustrations—they are chosen so well. It is to be doubted if large portions of such books are literature at all, for biography often obscures the issue, and criticism is for the young unintelligible. However, if such books are to be used, and schools will go on using them, no one can prepare them better than Miss Thomson.

AMONG recent additions to Blackie's Red Letter Library are Hazlitt's "Essays," with an introduction by Mr. Charles Whibley; Matthew Arnold's "Poems," with an introduction by Mrs. Meynell; and Burns's "Poems," with an introduction by Mr. Neil Munro. It is difficult to imagine anything more delightful than the printing and binding of these dainty volumes.

MR. WILLIAM HEINEMANN has added to his remarkably cheap series of Favourite Classics "Selected Essays of Joseph Addison," with an introduction by Mr. Austin Dobson, and "Poems of Emily Brontë," with an introduction by Mr. Arthur Symons.

History.

Outlines of European History. By A. J. Grant. xvi+368 pp. (Longmans.) 3*s.* 6*d.*—This is a very good book. Teachers who are beginning to foresee that they will soon be expected to teach something of world-history could not do better than take this little book as a first introduction to the subject. They will find in its short bibliographies guidance for the next stage in their reading. Our elder scholars will do well to read it too. It is plentifully illustrated, is clearly and pleasantly written, and it will open their minds to the history of other countries than England and thus help them to understand English history better. In this, as in much else, "what do they know of England, who only England know?" The range of events is from Homer's Greece to the present day. It is divided into three parts, the first hundred pages bringing us down to the adoption of Christianity in the Roman Empire, the second to the "Babylonish Captivity." There is much in the way of thoughtful comment, both expressed and implied, and there are exceedingly few points—and these can easily be corrected in a new edition—which require even small correction. Specially we would express our thanks for the explanatory notes to many of the illustrations.

History of England. By A. D. Innes. xvi+605 pp. (Cambridge University Press.) 4*s.* 6*d.*, or in three parts 2*s.* *each.*—*We gather* from the preface that this work is intended for the middle and upper forms of for pupils between fourteen and eighteen y The author "has not overlooked the demands and examinations, but he thinks the highes obtained by those who have taken an intelli in the subject for its own sake. The who therefore presented not as a catalogue of e a story, a drama." The book fulfils this have not come across a history of Englan should think would be read with more ple intelligent schoolboy or girl. The larger sp to modern times, only a third of the text bei pre-Reformation times. There are no "p there are more than twenty maps and plan of constitutions, ecclesiastical, Scottish, Irish, colonial matters, genealogical tables, a glossa logical summary, and an index. There are ve with which we should disagree. The map more to France than she possessed in the Plantagenets. Becket was surely not killed ' steps" (p. 51); there are two convocations in (p. 89); Barebones' name was only Praise, n (p. 282); "ecclesiastical" (p. 285) is surely a "episcopal" ordination; "occasional" did modern meaning in 1700 (p. 334), but m definite occasion." Walpole's momentarily su in 1727 was Sir Spencer Compton, not (347–8), and he did not say that "every mer price" (p. 347). The "Asiento" quarrel wit not settled, it is true, in 1748, but two years (p. 358). Mr. Innes does not seem to have formation about the diplomacy of the Seven and exaggerates the importance of William young days. But these are matters which rectified, and do not seriously diminish the ness of the book.

Young Folks' History of England. Ano 107 pp. (Relfe Bros.)—A slight sketch of En with tables of kings and dates, and a rhym of each reign. There are some pictures. It written, but omits much, and is at times inac

A Sketch of Scottish Industrial and Socia the Eighteenth and Nineteenth Centuries. Stirling. ix+225 pp. (Blackie.) 6*s.* net.— ing account of Scottish non-political histo date of the Union of 1707. It does not g things and is largely biographical. There a traits and an index.

Readings in English History from Orig Book I. (B.C. 54–A.D. 1154). By R. B. Morg Bailey. vi+134 pp. (Blackie.) 2*s.*—Not all of the same opinion as the editors of this b desirability of putting "sources" into the ha children, but if the thing is to be done at can have no better example of choice of pictures, of type, than is contained in this An appendix contains an "analysis of sourc of dates and of "tales illustrative of the peric

MESSRS. MACMILLAN have now published Green's well-known *Short History* in three 3*s.* each. Each volume is complete in its index and the maps and other apparatus wi are all familiar. The dividing dates are 14 This form will appeal equally to the general likes a book that will go into his pocket, and teacher, whose pupils can have the part requ "period."

Geography.

ion of Man. By Ernest Protheroe. xii+ huen.) 2*s.*—This is a good readable book, easy, swinging style by an author who is eliever in dry-as-dust methods or statistical The pity of it is that "inaccuracies"—to —have been allowed to creep in here and an extent that the student must be ever on d "verify his references" on almost every all allude to some of these inaccuracies headings of chapters give a clue to the eatment: "Climate and Man's Environ- and his Raw Materials," "Man and his in and his Markets" are samples; this is w of commercial geography—indeed, of —as a description of the earth as the . To enhance his description the author thirty or forty speaking pictures, all good d several excellent, notably one of a wheat), which is quite the best we remember to p-to-dateness is guaranteed in the inclusion as the opening of the Simplon Tunnel, the he Rhodesian Railway to Broken Hill, and ruin of San Francisco. A short appendix provides a few needful statistics. But, as the reader must be very careful in taking t Mr. Protheroe states as absolutely accurate. will flounder once more in the antique waters tream myth (p. 10); he will learn that Port- is made from Portland stone (p. 94), and practically no kaolin outside of Cornwall and ; he will read of Hindoos (p. 34) and the State (p. 32), of Quebec as the capital of oo), and Asaba (p. 201) as the capital of he will infer that it is only a serious com- and not a virtual annihilation of, madder , and one can almost say indigo, that has ntroduction of chemical dyes (p. 79); he will s of Liège as a factory of war material devoted to the subject (p. 110); and, finally, ne that Sir Titus Salt is still alive (p. 157), on and Central are *two* railways in North 23), and that the famous Atbara Bridge con- ch Mr. Protheroe should really consult the ommercial Intelligence") was actually what be, viz., a triumph for American over British . From all of which it is obvious that we is book to none but careful and conscientious them it will be interesting enough.

Asia. Orographical. Compiled under the H. J. Mackinder. (Stanford.) Sheets, 16*s.*; Size, 60 in. × 52 in.—This new orographical othing but praise, and is a fitting successor already published in the same series, viz., a, Palestine. As it includes the whole of essential unity of "Eurasia" is seen at a st important point to make in the teaching e scheme of colour is simple, but withal wns for land elevations, blues for sea depths. tiers are indicated by grey lines, and the ble" colour is selected for the lettering. The e, practically serves the purpose of a test for well as a base for working up the school ntally, we do not care for the spelling of adopted; but this is a secondary considera- s not detract from the value of the map for The "statement" sent out by the publisher with the map is valuable in itself; it furnishes an epitome of Asia's physical geography, and in the hands of a good teacher would effect more than many a text-book. It enumerates twenty-two points—all good and all necessary to a right understanding of the continent. Here are three taken at haphazard for the sake of example: "No. 1, The plateau of Tibet and the Pamirs"; "No. 7, The Ural range, dividing the great lowland into two nearly equal parts, and extending, with a bend like the blade of a sickle, through Nova Zembla" (excellently shown on the map); "No. 17, The shallowness of Palk Strait." Our advice to teachers of geography is: "Write for this wall-map at once."

Mathematics.

A School Course of Mathematics. By David Mair. viii+379 pp. (Clarendon Press.) 3*s.* 6*d.*—When a school book appears which is written on entirely new lines it is not by any means easy to decide in every case whether the new departure is justified; the difficulty becomes all the greater when the new methods affect nearly all the work of a school in a fairly well-defined department like that of mathematics. The range of this book is said to be "in general agreement with the practice of our schools; containing the Geometry, Algebra and Trigonometry usually read by pupils that do not specialise in mathematics. In detail there are a few differences." The order and method of treatment are, however, very different. Much of the discussion seems to us to be excellent, well suited to the beginner, and very stimulating to teacher and pupil alike. The prominence given to solids in the treatment of geometry is specially noticeable; the references to various practical problems, such as those on pp. 108–121, though possibly not wholly intelligible to the average pupil, are yet very valuable as bringing geometry into connection with the work of everyday life. How far the book could be adopted as a working text-book must be left for the decision of actual trial. That the teacher will find it worth careful study we are quite convinced; that it will form a standard for the new text-book of school mathematics does not seem to us to be so certain.

Elementary Mathematics. Algebra and Geometry. By Alex. Leighton. viii+296 pp. (Blackie.) 2*s.*—The range of this text-book is roughly: algebra up to and including quadratic equations in one unknown quantity; geometry, the subject-matter of Euclid's first three books, together with the simpler properties of similar figures and the mensuration of the simpler solids. In the treatment of algebra free use is made of graphical illustrations, equations are introduced at an early stage, and the examples for practice are numerous and free from complications. The greater part of the book is given to geometry, and full use is made of drawing as leading up to the theoretical discussions; the various references to solids and the introduction of mensuration of simple solids are distinctly valuable. The treatment as a whole is good, and the book is well suited for beginners.

A First Geometry. By W. M. Baker and A. A. Bourne. viii+128+(Answers) vi pp. (Bell.) 1*s.* 6*d.*—Except for a short course of "Theorems," pp. 109–128, the treatment of geometry is carried out on the lines of what is usually called "experimental" or "practical" geometry. The course seems to be well adapted for beginners; the exercises are simple, but bring in a large number of essential geometrical properties, and the applications of drawing to scale are of a kind that should be known to pupils, whether the pupils are interested in them or not.

The preface sounds a warning note, that is certainly not altogether to be disregarded, respecting the tendency to substitute geometrical drawing for calculation.

Pitman's "Proficiency" Arithmetics. Part i., 35 pp.; part ii., 39 pp. Paper, 2*d.*; cloth, 3*d.* each. Answers to part ii., 8 pp., cloth, 3*d.* net. (Pitman.)—Part i. treats of simple quantities: addition, subtraction, multiplication, and division. Part ii. forms an extension of the work of part i., and also deals with compound quantities, the questions involving only small sums of money. The books are designed to meet the requirements of Schedule VI. of the Code of 1906.

Introduction to the Theory of Fourier's Series and Integrals and the Mathematical Theory of the Conduction of Heat. By H. S. Carslaw. xvii+434 pp. (Macmillan.) 14*s.* net.—Of all the applications of higher mathematics there is probably none that is more instructive to the student or that has reacted more powerfully on pure mathematics than the investigations inaugurated by Fourier on the conduction of heat. The marvellous combination of mathematical power, physical insight, and expository skill presented by Fourier's treatise has won for it a secure place among the classics of pure and applied mathematics, and makes its study even now almost indispensable. At the same time, it must not be forgotten that new standards of mathematical rigour have been set up that make it necessary for present-day students to approach the subject in a somewhat different way from that adopted by Fourier. The treatise now under notice is written from the modern standpoint, and is an admirable guide to the subject for the well-prepared mathematical reader. A considerable number of the earlier pages deals with purely mathematical considerations that are undoubtedly important, but might perhaps have been compressed into smaller compass; the first four chapters, though they contain much good mathematics, may give the physicist a false idea of the real nature of the book. The discussion of the Fourier series and integrals is very clear, is well illustrated by simple examples and graphs, and contains all that is required for physical applications. Part ii. of the book, forming pp. 191–410, treats of the mathematical theory of the conduction of heat in solids. The problems that may be called classical are discussed in a way that satisfies modern demands from the mathematical standpoint, and are illustrated, where opportunity offers, by accounts of experimental methods based on the mathematical analysis. Recent developments, such as the applications of Green's functions and the use of sources and sinks, are fully dealt with. Two appendices on the bibliography of the subject will be highly valued by students; it is gratifying to learn that the various journals referred to are accessible in the library of a colonial university. The book is furnished with a full table of contents and a good index that make it suitable for purposes of reference.

Science and Technology.

A First-year Course of Practical Magnetism and Electricity. By P. E. Shaw. 66 pp. (*Electrician* Publishing Co.) 2*s.* 6*d.* net.—In this volume a short course of thirty-five experiments is presented, distributed over a wide range of subjects, commencing with the measurement of length and terminating with wireless telegraphy and electric motors. The preface states that "the many small books on elementary practical physics all assume in the student a knowledge of the rudiments of algebra, geometry, trigonometry, and mechanics. There is, however, a large and growing class of technical students who have primitive mathematical training, and who ca not, acquire it as a foundation for physical In this book, I have sought to make the exper as quantitative as possible, yet to avoid symbols." The sentiments here expressed ar opinion, in agreement with modern notions o tion. A foundation of mathematics is nece student of magnetism and electricity; theref be encouraged. In this volume we do not for mathematical symbols; for, in Exercise that "The magnetic moment is given by the l

$$M = \frac{H \cdot d^3}{2} \cdot \tan A,"$$

and "tan A is given by reference to a book of Similar quotations might be given from o the volume.

Examples in the Mathematical Theory of E Magnetism. Edited by J. G. Leathem. 59 1*s.* 6*d.*—A collection of 205 examples, taken papers set in the Cambridge tripos examin college examinations of the same university. matics involved is necessarily of an advanced

Elementary Science, for the Preliminar Examination. Section B, Physics. By J. pp. (Clive.) 2*s.*—This book has been speci to meet the requirements of one of the Elementary Science of the Preliminary Exa the Teacher's Certificate. If we disregard purpose for which the book has been writ no hesitation in recommending it as a trust to the student. But an important considerati ponderance of girl students amongst the cand Preliminary Certificate Examination, and m are totally devoid of mathematical training. dates would find insuperable difficulties in foll portions of the book, especially those mechanics and heat. This criticism would course, in the case of pupil teachers wh mathematics as an optional subject. The magnetism and on electricity are decidedly el are sufficient for the purposes of the examin

Applied Electricity. By J. Paley Yorl (Arnold.) 7*s.* 6*d.*—This book is intended a of electrical engineering for second-year stude already become acquainted with the fundame of magnetism and electricity, and have also of the elements of mechanics, heat, and Only those sections of pure science which with modern electrical practice are dealt wi sections include chapters on units, measureme E.M.F., resistance, and on magnetism. The the volume is devoted to the principles of inc arc lighting, electric installations and powe dynamos, continuous-current motors, altern and transformers, &c. The subject is treat factory manner, and the volume is well i printed. It will serve well as an introductio specialised branches of electrical engineering.

The Science of Common Life. By J. vi+273 pp. (Sonnenschein.) 3*s.* 6*d.*—This perimental physics and chemistry presents features. The instructions for practical wor and adequate, and the running commentary

Students preparing for the Board of Educa-
ion on "The Science of Common Life" will

heoretical and Descriptive. By H. C.
S. Gibson, and C. E. Zimmerman. 373 pp.
6*d.*—This volume has been prepared as a
the use of students in American high schools,
ıded to convey a knowledge of the theoretical
'e, as distinct from the quantitative, aspects
:. All branches of physics are included, and
ted in an interesting and up-to-date manner.
icism which we would offer is that the various
not treated with corresponding fulness; thus,
ity is confined to three pages of the text,
pages are devoted to an excellent chapter on
Light, and Colour. The illustrations are

ı *Physics for the Use of Schools.* By J. H.
W. H. Salmon. 116 pp. (Murray.) 1*s.*—
es have been drawn up at the suggestion of
e teachers, who desired to have a series of
n which home work or class work may be
ımples are simple, varied, and well chosen,
be recommended for use in secondary schools
echnical schools.

Miscellaneous.

Babylon. A Drama. By A. M. Buckton.
thuen.) 1*s.* net.—Miss Buckton's "Eager
become almost a classic in its way, and is
most successful attempt we have seen to
diæval mystery-play. This drama of Nebu-
', as it seems we ought to say, Nabu-kudurri-
ıe Three Holy Children is more ambitious
so successful. There is certainly room for
of the religious drama; and no one could
than Miss Buckton for the task. She unites
e of stage effect with deep religious feeling
ed simplicity of style. For the purpose in
ualities are more requisite than a feeling
, which hitherto it has not been in her
ɔlay. Here we have, first, the picture of the
planning their release from captivity on the
ı of conspiracy. Next there is the scene
King, Nebuchadnessar, insists on all his
and Gentile alike, bowing down to the image
e has set up. The three faithful Jews are
furnace in which the gold for the idol had
ınd the King confesses himself

"a beast before you all—
dull ox driven out to the hills!"

has carefully studied the latest investiga-
ars upon the Bible story, and has made—
can judge—a true rehabilitation of Babylon
We think she is well advised in forsaking
o reproduce the *naïveté* of the early miracle
being frankly modern in her outlook, while
he essence of the tradition, namely, the
: which alone makes such work profitable

ıd other Dramas. By E. G. Harris. 179 pp.
best that we can say of these plays is that
l-intentioned; and this is not such faint
r appear. For we are not yet beyond the
g the drama from the ruts into which it
f mere frivolity, *or mere excitement* and
appeal to the senses. There is room for serious plays of all sorts. These stories of martyrs in dialogue form may evoke interest in serious subjects if presented, as the author seems to have planned, before private societies, such as the Guild of St. Agnes (whatever that may be!) and other agencies for the mental and moral improvement of young men and women. The plays are partly in verse (of the blankest), and they are interspersed with songs and hymns. The fault we have to find with them, apart from the poverty of their execution, is that stories of martyrdom are essentially non-dramatic. The martyr, *qua* martyr, is one who conquers apparently without effort—though actually, of course, by means of faith—the natural shrinking of the human spirit from pain and death. Such figures are too far removed from normal experience to enter into dramatic situations, which must consist of a struggle or contrast between normal human emotions. As an example of fortitude and noble heroism, St. Agnes is admirably fitted to be brought before the notice of the young. But, although Miss Harris shows some sense of dramatic presentation, she is heavily handicapped by her subject, and can only make of it a spectacle rather than a play.

CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD *will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

Epidemics in Day Schools.

"HEADMASTER" has been unusually unfortunate in his experience, and he has shown a lamentable lack of knowledge for his position of "headmaster"; one would have thought that anyone assuming such a position would have known of the "Code of Rules for the prevention of Infectious and Contagious Diseases in Schools," issued by the Medical Officers of Schools Association, which would have at once given him the information he required in the most up-to-date form.

No medical man has in his own practice sufficient data to form a trustworthy opinion as to the incidence of infectious diseases, and can only express the results obtained from the experience of many workers, collated and digested by competent observers, such as the "Code" above referred to, which—although later observations may necessitate corrections and alterations—may be regarded as the expression of the latest available information, and which *he* might just as well consult himself as refer to a medical practitioner, who can only echo the information there published; to medical science, therefore, must not be attributed the lack of credibility with which he charges it.

As regards the second point raised by "Headmaster," *i.e.*, the question of a pupil who already has had an infectious illness coming to school from a house where the disease exists. I fear he is also showing a very limited application of the "common sense" which he considers so urgently needed on the question: all the infectious diseases he mentions are more *or less* "protective," that is to say, that the body invaded by such an infection develops a counteracting medium to the infection, and a struggle for the survival of the fittest results; if the invading organisms overcome the counteracting forces the patient dies, and if the counteracting forces overcome the invading organisms the patient not only recovers, but as a rule retains in the body some of

this counteracting material, so that any future invasion by a similar organism is at once repelled. There are, however, many persons in whom this counteracting material does not persist, or persists in such small amount, that it is insufficient to repel a second invasion, and then the patient may suffer a second time from the same illness. This is the generally accepted view by the medical profession at the present time—*pace* the "nearly every authority" referred to by "Headmaster"!

These being the facts, the practical application of them seems fairly clear and definite from the scientific standpoint. Thus:

(1) No child should be allowed to return to school until after the expiration of the incubation period since the *last* exposure to any infectious illness.

(2) In ordinary houses isolation is practically impossible, and therefore the "last exposure" should count from the last date of the infectious period of the patient.

(3) Where a pupil has already had an infectious illness and is again exposed to it there is a great *probability* that it will not again infect him, and therefore he may be allowed to return to school; but, bearing in mind the *possibility* of his having a second attack, his temperature should be taken night and morning during the incubation period, and he should not be allowed to return to school if there is any rise of temperature or he has any indisposition of any kind whatever (where there is any doubt as to this being efficiently done he should not be readmitted to school until the incubation period has passed, the safety of many requiring the sacrifice of the few).

(4) Where a pupil has already had an infectious illness and is living in the house where such illness occurs, there is little risk of his carrying the infection (with the exception of scarlet fever) provided he is rigidly prevented from in any way coming in contact with the case, and he may, subject to (3), be allowed to attend school.

(5) Where a school is so full of infection that cases are constantly occurring, there is no object in excluding individual pupils, and other methods must be considered for stopping such an epidemic.

The policy of open windows and other hygienic measures advocated by "Headmaster" is, of course, useful, for there is less illness where the sanitary arrangements are most efficiently carried out; but surely he cannot think, with society constituted as it is, that such a Utopian result as he suggests can possibly occur during the time of his headmastership. Would it not therefore be better for him—and for us all—to adopt a really "commonsense" plan of action, recognise that infectious disease *must* occur, have rules such as I have suggested, to meet it when it does occur, and avoid on the one hand getting into a panic, and on the other hand a reckless exposure of the unprotected—for mild as these diseases usually are, measles and whooping-cough still head the list of the causes of death in our islands? M.D.

Proof of the Parallel Theorem.

One of the arguments used against the order of theorems adopted in the Cambridge syllabus is that the sequence demands that the fundamental theorem on parallels shall be proved from first principles. This renders the proof very difficult for beginners. The objection holds against the proof given in Barnard and Child's "New Geometries," and, personally, for the last couple of years I have used the proof below. I should be much obliged if room could be found in The School World for this letter and the proof in question, so that readers, especially those *who use these text-books, might* express their opinions on the comparative merits of the two proofs tical teacher's point of view, either in th privately to me.

17, Clarence Road, Derby.

Theorem.

If a straight line fall across two other as to make the alternate angles equal, t lines are parallel.

Let ABCD fall across the two straight so as to make the alternate angles α, another: then

EF is parallel to GH.

Proof. Since $\alpha = \beta$,

and $\therefore \alpha = \gamma$, $\beta = \delta$

$\therefore \quad \gamma = \delta$.

Let the figures *dcgbea*, $a_1b_1f_1c_1h_1d_1$ be cong with DCGBEA, ABFCHD; then

$\therefore \angle dcg = \delta = \gamma = \angle a_1b_1f_1$

and $\angle cbe = \alpha = \beta = \angle b_1ch_1$,

and $cb = CB = c_1b_1$;

$\therefore$ the figure *dcgbea* can be placed upon the so that c falls on b_1, and b on c_1, and the along the lines a_1d_1, b_1f_1, c_1h_1.

Hence, if the lines GH, EF are supp the direction of H, F,

i.e., CH, BF meet in the direction of H, F

$\therefore$ c_1h_1, b_1f_1 ,, ,, h_1, f_1

$\therefore$ be, cg ,, ,, e, g

$\therefore$ BE, CG ,, ,, E, G

i.e., the lines FE, GH meet in the directio as in the direction of H, F: but two lines c two points;

$\therefore$ EF, GH do not meet at a

$\therefore$ EF $\parallel$ GH.

In teaching with the blackboard, the au figures are constructed with dotted circul takes a little time, the students are g for the method of the proof by the ti finished; and the proof is understood than if the part ABFCHD (or its trace) in one operation to coincide with the part

A Table Appliance for Measuring Ele

The apparatus here described has pro as a means of rapidly regulating a curren dimension within a range of considerabl measuring its voltage and amperage, wi ing a lecture-table with the resistance b ammeters, &c., usually required. A lec after performing one experiment for whic

quired, may perhaps wish to turn to one heavier current. This would in most circumsitate changing the resistances previously rs of greater carrying capacity, and perhaps ammeters and voltmeters also. To avoid ence and loss of time, I use for my lectures

FIG. 1.

al teak board measuring about 2 ft. by ted as shown in Fig. 1

ions are shown diagrammatically in Fig. 2. s that the fittings would need certain modifiit different ranges of voltage. The fittings suitable for voltages 1–50.

urrent enters from battery or generator.

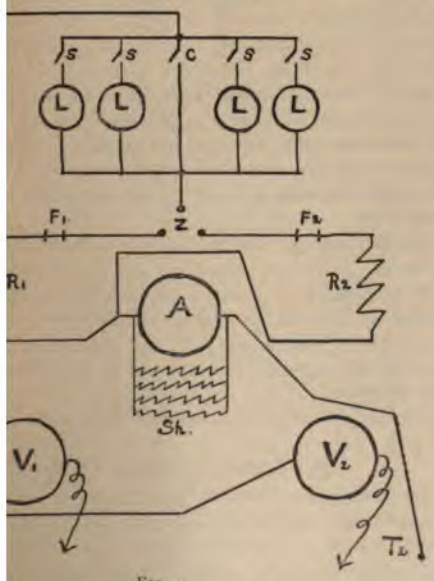


FIG. 2.

four 50-volt lamps in parallel, giving resist-, 40, 26, 20 ohms, and carrying current up nperes.

amp switches.

t-out switch, used when heavier current is ll voltage is employed.

Z, a two-way switch.

From Z the current can be diverted to the left through a 10-ampere fuse, F_1, and thence to the rheostat, R_1, of resistance 8 ohms, capacity 10 amperes, or from Z the current can be diverted to the right through a 1-ampere fuse, F_2, and the rheostat, R_2. This has resistance up to 32 ohms, capacity 1 ampere. By either course the current reaches the ammeter A. This is a small instrument with a 3-in. dial, and graduated to 2 amperes only. Thus an "open face" is secured, and small currents can be measured with some accuracy. Sh. is a shunt box, with $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$ shunts, so that a 10-ampere current can be employed if needed.

T_2, terminal for attachment to lecture apparatus.

V_1 is a voltmeter reading 1–60 volts.

V_2, a voltmeter reading 1–6 volts.

The negative terminal of each voltmeter consists of some 2 ft. of flexible wire ending in a "dagger point." By employing these flexible terminals, not only can the voltage of the supply battery be read, but also the volts consumed in any portion of the circuit, and the accuracy of many experiments involving numerical results readily checked.

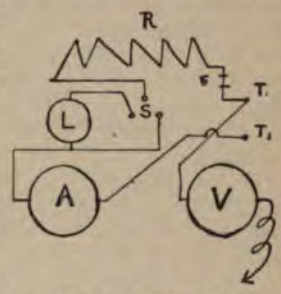


FIG. 3.—T, T, terminals; R, rheostat, 1 amp. capacity, 32 ohm resistance; S, two-way switch; L, lamp, 80 ohm resistance; A, ammeter, 1–2 amps.; V, voltmeter with free terminal; F, 1 amp. fuse.

Several smaller modifications of the above are used at this school by the senior students. Fig. 3 shows a board in which the instruments are made to be used in a horizontal position.

These boards have proved particularly useful for checking results obtained by the usual methods, such as:

(1) Resistance of a wire or of any portion of a circuit. By the free voltmeter terminal we can measure E_1 at either end of the wire; note ammeter reading then

$$R = \frac{E_1 - E_2}{C}.$$

(2) Thermal effects of current and Joule's law. Read E_1, E_2 at each end of wire passing through the calorimeter. Take ammeter reading, and check value obtained by thermometer for heat produced by formula $H = \frac{CEt}{4.2}$.

(3) The carrying capacity being high on one side of the board and the current capable of very minute adjustment on the other, the same board serves for regulating the heavy current needed for, say, the action of currents on currents, and the very small one for mirror galvanometer, &c.

By connecting the terminals direct to a battery, varying the resistances in circuit, and taking reading by connecting the voltmeter terminals to various points, a student in a short time gets clear ideas of these effects in the following:

(1) Variation of volts consumed with resistance encountered.

(2) Different effects of resistance in series and parallel.

(3) Importance of internal resistance when external resistance is small, and its converse.

(4) Use of shunts.

(5) Ohm's law true for any part of a circuit.

(6) Use of fuses in short circuit, &c.

Moreover, by habitually using the board, except in such cases where it is not desirable that he should be able to measure current or voltage direct, a pupil gains some definite notion of what a current of, say, 1 ampere means, or at least he gets to know what strength of current is needed to use with different apparatus; probably most boys who work successfully the ordinary experiments given in a laboratory course have no notion of the magnitude of the current they are using. By their attention being constantly directed to the readings on the instrument, the terms volts and amperes cease to be mere words.

W. E. CROSS.

Whitgift Grammar School, Croydon.

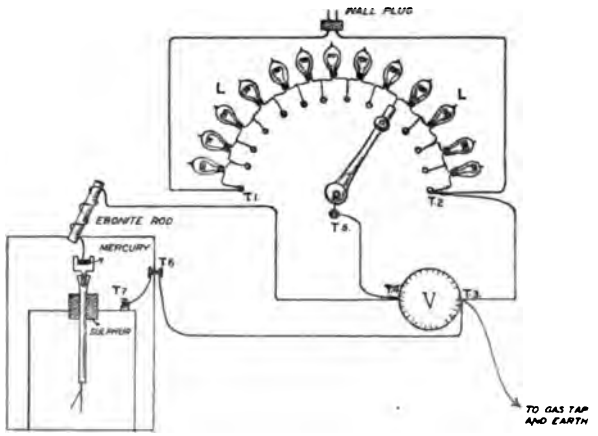
Quantitative Experiments in Electrostatics

EXPERIMENT 1.—*To obtain the voltage-curve of an electroscope.*

The electroscope has a single gold leaf, which is observed through a microscope having a scale in the eye-piece. Instead of the usual "cap," a small mercury cup (made out of a terminal) is screwed on to the brass rod carrying the leaf. A "Faraday-cage" or "screening-box," *i.e.*, a wooden box lined with tinfoil or zinc and earth-connected, protects the instrument from electrostatic disturbances.

By the voltage-curve is here meant a curve drawn with the microscope-readings represented along the axis of abscissæ, and the corresponding voltages of the gold leaf along the axis of ordinates.

The connections for a calibration are shown in the diagram. The terminals T_1 and T_2 of a "potential-



divider" or "volt-box," consisting of ten or fifteen 16-c.p., 230 volt lamps in series, L, L, are connected to the supply mains. One terminal, T_3, of a voltmeter is connected to the earthed end, T_2, of the lamps; the second terminal, T_4, of the voltmeter is connected to one end, T_5, of a metal lever, the other end, C, of which can be made to press on any of the pieces of metal, D, D, in metallic communication with the lamps. The terminals T_6 and T_7 of the electroscope case and screening-box are connected to the earthed terminal T_3 of the voltmeter, while terminal T_1 is connected to an insulated wire W wound round an ebonite rod and dipping in the mercury cup of the electroscope.

In this way a number of voltages, from 0 up to the supply-pressure, can be applied to the electroscope and their values read off on the voltmeter, provided the latter *has a resistance which is sufficiently* high compared with *that of the lamps.*

For each position of the lever—starting with that gives the highest readable deflection of the wire W is allowed to remain in the mercury seconds so as to ensure that the leaf acquires th of the wire. The voltmeter-reading is taken j removing the wire from the mercury, and the is read just after (the microscope-reading is, higher while the wire is in the mercury).

EXPERIMENT 2.—*To determine the electric capa electroscope calibrated in the previous experimer*

The leaf is charged to the highest possible r small brass ball, held by means of a silk fibre, to touch the drop of mercury in the electroscope removed and discharged, and a reading of the is again taken. These operations are repeated contact with the ball produces an appreciable in the reading.

Let C = capacity of ball = radius of ball in cm.
C′ = ,, electroscope in cm.
V_0 = initial potential of electroscope
V_1 = potential of electroscope after 1st conta
V_2 = ,, ,, ,, 2nd
. . . . . .
V_{n-1} = ,, ,, ,, $(n-1)$th
V_n = ,, ,, ,, nth
Then charge lost by electroscope in 1st contact = C
,, gained ,, ball ,, ,, = C
Equating, $C'(V_0 - V_1) = C$

$$\therefore \quad V_0 - V_1 = \frac{C}{C'}$$

Similarly, $V_1 - V_2 = \frac{C}{C'}$

$$\vdots \qquad \vdots$$

Lastly, $V_{n-1} - V_n = \frac{C}{C'}$

Adding (1), (2)..., (n) in columns and simplifying,

$$V_0 - V_n = \frac{C}{C'}\left(V_1 + V_2 + \ldots + V\right.$$

$$\therefore \quad C' = \frac{V_1 + V_2 + \ldots + V}{V_0 - V_n}$$

If C′ be calculated separately from (1), ((n), the results are liable to differ greatly from or If, however, the average of these be taken, found to agree very well with formula (A). I the latter formula is used, as the calculation is simplified.

EXPERIMENT 3.—*To measure a capacity of th 1 cm.*

The capacity of a small electroscope having b mined as well as its voltage-curve, other small can now be compared with the electroscope in way as its capacity was compared with that of known radius.

Technical School, Southend-on-Sea.

The Choice of School Text-books

NOT the least of the many difficulties that beset master is the choice of books for use in the varic of his school. However much trouble is taken, c feels that the right edition may have been o The claims of economy, too, have to be consider as the demands of the specialist teacher. The particularly difficult in top forms in, for instanc or geography, when a book is needed that incluc ground already covered in other forms, though s by bit during previous years.

In the hope that space enough can be four

I offer a tentative list, prepared for use in ext term, as the basis of discussion and com- are aware of our shortcomings, and would le to amend our choice by the experience of For our hope is that other headmasters and s will send their own lists to THE SCHOOL iat it may perhaps prove possible to compile ous lists a summary of the books most usually

G. H. CLARKE.

School, Acton.

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was opened in April, 1906, and is intended to the age of eighteen or nineteen. At 190 boys are divided into seven forms; the f the lowest form is eleven years four months, the top fourteen years ten months. The ret, is low. Books are supplied by the school. "Lessons from the Old Testament," Junior ebrook (Rivingtons); The New Testament, mcise Bible Dictionary" (Cambridge Press).

erature and Grammar.—Form II., "English ie Young" (Blackie); "Home and Abroad iv. (Arnold); "Grammar," Davidson and in).—III. Lr., Poetry as above; "Britannia i. (Arnold); "Grammar," Hyde, section ii. also in the four following forms).—III. Md., " (Blackie); "Tom Brown's Schooldays" . Up., "Ballads of British History," pt. ii. Heroes of Asgard" (Macmillan).—IV. Lr., Canto vi. (Nelson); "Ulysses," Lamb . Up., Spenser, Selections (Blackie); "Life Southey (Nelson).—V., Chaucer, "Prologue" Press); "Montezuma," Prescott (Blackie); English Grammar," Nesfield (Macmillan); erature," Wilson (Arnold).

orm II., "Britannia Reader," IIIa. (Arnold). Oxford Manual," pt. i. (Blackie).—III. Md. , "Elementary History," Ransome (Riving- r. and Up. and V., "English History," and iii. (Arnold).

—Form II., "London, Historical and De- Blackie); "England and Wales," Lyde Lr., "Concentric Geography" (McDougall); Home," pt. ii., Mackinder (Philip).—III. Md., rde (Black).—III. Up., IV. Lr., and IV. Up., s (Black).—V., "Man and His Work," Black); "Atlas," L'Estrange (Philip).

3. Bell's "Concise Latin Course."— ourse," pt. i., Scott and Jones (Blackie); iae" (Bell).—1. "Prose," North and Hillard "Scalae Mediae" (Bell); Kennedy's ner (Longmans).

orm II. and Set 6. "Preparatory French :Dougall).—5. Mackay and Curtis, pt. i. "Les deux Brigands" (Hachette).—4. Curtis, pt. i.; "Nouvelles et Anecdotes" -3. Mackay and Curtis, pt. i.; "La jeune ringtons).—2. Mackay and Curtis, pt. ii.; Accidence" (Brown and Sons); "Le petit ton" (Rivingtons).—1. "French Composi- gent (Heath); "Elementary Accidence"; Houssaye (Black); "Extracts in Phonetic" (Black).

et 3. "Lehrbuch," Spanhoofd (Heath); Allerlei" (Rivingtons).—2. "Lehrbuch," Spanhoofd; "Lustige Geschichten."—1. "Lehrbuch," Spanhoofd; "German Conversation and Composition," Wesselhoeft (Heath); "Fritz auf dem Lande" (Rivingtons).

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Science.—Nature-study, "The Book of Nature"; "Nature Study," Latter (Dent); "Chemistry for Schools of Science," Parrish (Macmillan); "Heat, Light, and Sound," Jones (Macmillan); "Inorganic Chemistry," Newth (Longmans); "Electricity and Magnetism," Sanderson (Macmillan).

[Other headmasters and headmistresses have experienced the difficulty of which Mr. Clarke writes. To render assistance in such cases we shall be glad to receive similar lists of books in use in well-known schools, and will endeavour to publish a digest of them in an early issue.—EDS.]

School Sermons.

THE last twenty years have seen an awakening of public interest in educational matters generally; but, strangely enough, the parent who is ready to suggest what should and what should not be taught, and the strength of whose opinions about the secular teaching varies, in general, directly as his ignorance—this parent rarely makes a suggestion about the subject of which he probably has some knowledge, viz., religious and moral teaching. Perhaps it is in consequence of this that in one particular, a most important particular, the system of fifty years ago is still in vogue. School sermons might be made a most powerful engine for forming character and instilling moral ideas; they are too often but a waste of time for the preacher and a dreary period of boredom for the congregation. I am now speaking, not so much of the big public schools, though even there the comparatively small proportion of clerical masters in these days makes the question important, as of the numberless small schools scattered over the country, of one hundred to one hundred and fifty boys. In these perhaps the headmaster alone is in orders, and, with the exception of a few schools, he alone preaches. The results would be unsatisfactory enough if he contented himself with preaching sermons of his own twice a term and read a good selection of other men's sermons on the other Sundays; but when, as is sometimes the case, he preaches nothing but his own sermons, the loss of opportunities is truly appalling.

The figure of the conscientious headmaster who feels that he has something new to tell his boys each week, and laboriously writes his discourse when he should be resting, is a truly pathetic one—fortunate indeed if he is blind to the inattention and listlessness of the great majority of his audience. After a very few years his style and delivery become stereotyped. Equally stereotyped, likewise, though he is unconscious of it, become his treatment of a subject and method of presenting it. No one likes to point out these facts to him; no one hints to him that his boys get tired of hearing the same voice, the same inflections, the same truths presented to them in the same form of words and with the same outlook Sunday after Sunday; no one has the hardihood to suggest that, though he may believe he has something new to say each week, there is also the boys' side of the question, and that they may not be willing to listen to him. Surely those masters, at all events, who can be trusted to give Divinity lessons could

also be trusted to preach their own sermons (if they wished to), while the others could read those of such headmasters as Dr. Arnold, Dr. Temple, and Mr. Almond. Then the headmaster's biterminal sermons would be a novelty, and would receive the attention they merit.

Truly the author of "Tom Brown" has much to answer for with his "The tall gallant form, the kindling eye, the voice now soft as the low notes of a flute, now stirring as the call of the light infantry bugle who stood there Sunday after Sunday . . ."; but then, no doubt, Dr. Arnold was unique. LAYMAN.

Pessimism in Education.

IN the March number of THE SCHOOL WORLD I observe that Prof. Armstrong takes a somewhat different view of some great men from that generally adopted. "Would not boys and girls tell us," he inquires (p. 82*b*), "that Macaulay's essays on bores like Warren Hastings and Frederick the Great had little interest for them—being for the most part beyond their comprehension?" Prof. Armstrong's pronouncements have been subjected to a pretty bit of Socratic cross-questioning by Dr. Rouse, from a literary-pedagogical point of view, in your April number. Far be it from me to attempt anything of the sort from a historical-pedagogical point of view: recent experience has shown how easily a humble trawler may suffer if its peaceful fishing-grounds happen to lie near the lordly track of a big man-of-war. Still, I should be glad to know—and many history-teacher readers of THE SCHOOL WORLD might be glad to know too—whether it is Prof. Armstrong or Prof. Armstrong's schoolboy that regards Hastings and Frederick as "bores": whether these bores are "for the most part beyond the comprehension" of schoolboys because of their own qualities or merely because of Macaulay's method of treating them; how that "innate desire for a closer knowledge of actual fact" which seems to animate Prof. Armstrong's schoolboy is going to be satisfied, as regards the "actual" political "facts" of to-day, without a deal of knowledge of these same "bores"? Perhaps, before formally and finally labelling Frederick the Great POISON, Prof. Armstrong would have the goodness to read the certificate of that eminent analyst, Lord Acton, to the effect that the said Frederick was "the most consummate practical genius that, in modern times, has ascended a throne" (Acton, "Lectures on Modern History," xviii.). J. S. LINDSEY.

Domestic Training in Welsh County Schools.

"NOTHING lovelier can be found in woman than to study household goods" (Milton).

The comfort and health of a household depend so much upon the housewife, that domestic subjects, such as cookery, laundry-work, and housewifery, should form an important part in girls' education. In the majority of schools, one lesson a week of two hours only is given to cookery, and an experienced person alone can understand the difficulty under which a technical instructress has to work. However, it is a pleasure to know that some schools are making progress in this direction. During the last two years the technical department of my school has received every encouragement, both from the headmistress and governors, who both take the greatest interest in this technical work.

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Tuesday.—Roast pork, apple sauce, vege bread.

Wednesday.—Vegetable soup, bread, rice pu

Thursday.—Boiled fish, parsley sauce, bread,

Friday.—Brown stew, potatoes, bread.

Monday.—Haricot soup, bread, marmalade p

Tuesday.—Meat pies, potatoes, bread.

Wednesday.—Stewed liver and bacon, vegeta

Thursday.—Welsh soup, apple dumplings, m

Friday.—Irish stew, bread.

The ingredients are bought, where possib quantities. Bread is made by the girls, ar school. S. :

County School, Bala.

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The School World

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2. JUNE, 1907. SIXPENCE.

CATION AND THE EMPIRE.

n W. ATKINSON, M.A. (Cantab. and Cape),
lmaster of the Boys' High School, Pretoria.

Colonial Conference of 1907 belongs
ady to the past; its results lie still in the
ire. The Federal Conference on Edu-
ich will also have been concluded by the
article is published, may lead to results
ant to the Empire as those of the
Conference. It is, in any case, indica-
perial feeling and at the same time a
rury for educational unity that a Con-
imperial representatives from the De-
of Education should follow so closely
f the Colonial Premiers, and that it
ve received such genuine support from
nments and institutions represented.

lonial Conference did indeed touch upon
on of reciprocity between the various
he Empire in the matter of certain pro-
nd qualifying examinations. On May
olonial Office précis of the Conference
s contained the following paragraphs:

Barristers.

erence decided to record and to reserve for
sideration the following resolution of the
of New Zealand:
ovision should be made throughout the Empire
rocal admission of barristers to practise, and,
, that the mere fact that in any dependency
nches of the profession are amalgamated should
bar to the admission of barristers of that
o practise in England or elsewhere."

Land Surveyors.

ing resolution was agreed to:
is desirable that reciprocity should be estab-
en the respective Governments and examining
throughout the Empire with regard to the
and authorisation of land surveyors, and that
ndum of the Surveyors' Institute on this sub-
nended for the favourable consideration of the
overnments."

deral Conference on Education, which
ged by the League of the Empire, dealt
nprehensive programme, the agenda for
submitted to the Heads of the Educa-
rtments.

ion to the official conferences of the
Heads of Departments, there were general conferences of delegates from educational bodies, open meetings, and discussions in sectional meetings of special matters of interest to educationists.

It has been said that it is not the debates in the House of Commons that are of importance, but the discussions in the lobbies; and probably one of the most important results of the occasion will be the personal acquaintances formed and the personal interchange of ideas and opinions that will have taken place outside the actual meetings.

Educationally as well as politically the Empire is not a unity but a collection of units. The physical, racial, commercial and political problems, widely variant in the different parts of the Empire, have all of them influenced to a greater or lesser degree the widely variant attempts at the solutions of educational problems.

Is it possible, now in the twentieth century, to attain to a greater uniformity of system of education throughout the Empire, or, *faute de mieux*, to establish a scheme of compromise, a basis of reciprocity that may favourably modify, if not at once abolish, the anomalies that result from existing conditions? A teacher with his full first-class professional certificate from one part of the Empire may go to another part and find that he can only obtain therewith a third-class certificate. The examination certificate of a pupil from one colony does not by any means carry equivalent privileges in another colony.

A fully-qualified surveyor may find that migration to another British possession involves a renewed series of examinations and their attendant payments of fees. Such conditions hinder imperial development. The surveyor loses valuable time and the Empire is deprived temporarily of the results of his work. The pupil has to find a new footing and his education suffers, and the Empire loses time that he might have devoted to its services. The teacher hesitates to move from the position which his first-class certificate guarantees him, to take up a post under a third-class certificate with its lower position and lower grade of salary; and each part of the Empire suffers from the results of prolonged interbreeding and from the loss of the advantages that arise from the introduction of new blood.

It is not possible to discuss here in detail the

many problems with their possible solutions that are presented by the questions that were before the Conference. Lack of space would prevent it, even if it were not necessarily precluded by the fact that probably no one person is sufficiently acquainted with all the varying conditions of the different portions of the Empire. Some of the leading facts in relation to, and some of the more prominent reasons for, these varying conditions may, however, be set down, and some possibilities, and indeed impossibilities, pointed out in the direction of a greater uniformity or a reciprocity in educational matters.

There have been of recent times, signs of a willingness on the part of various educational bodies to move in the direction of uniformity and reciprocity. At home, the universities have adopted schemes of joint scholarship examinations; the public schools have adopted a similar scheme for their entrance examinations; and a more liberal spirit has been shown by the universities in the acceptance of one another's matriculation standards. Abroad, such conferences as those between representatives of the South African States on educational standards and codes betray a like recognition of the necessity of co-operation. At the same time we find, at home, each university satisfied to retain its own special curriculum and examination for a teacher's diploma, unwilling to recognise for the purposes of its own degrees periods spent in study at another university; we find, too, a multiplicity of external examining bodies, each with its own *clientèle*; and abroad, the same South African States unable to agree to one South African University, but rather desirous each to possess its own separate university, and maintaining rival standards of examination.

The causes of such heterogeneity are not far to seek. The conditions and requirements of colonial life are often not the same as those prevailing at home. The ideals of the Heads of the Education Departments are widely different, and lead to the formulation of widely differing codes and schemes; some essentially practical, some rather idealistic and over-ambitious, and, by the way, some secular and others religious. The racial conditions of some colonies necessitate provision for the teaching of languages which in others are of no value. (Dutch, Sesutu, and Zulu are provided for in the Cape schemes, and Dutch in the Transvaal codes, but none of these would be of any value in the Dominion or the Commonwealth.) The educational schemes of the colonies date from different periods, were evolved to suit as far as possible the particular environments, and have undergone changes prompted by like considerations. The difficulty of introducing harmony or compromise is sufficiently evident at home. How much more difficult will the task be to attain such result between the outlying parts of the Empire or between them and the mother country.

It would appear that the movement for educational federation should commence from above, from the universities. Three reasons suggest this. The universities are les by State control, and would be more fr on a mutually acceptable basis of a ge education. Being fewer in number t stitutions of a lower standard of edu cussion becomes more practicable an An agreement among them on a reci cognised matriculation standard woul simplify the next stage of the process dardisation and normalisation of leaving examinations. Of these t should be such as to admit the stud university in the British Empire, and be the centre point from which an higher education would be developed a ised, and up to which the secondary a education would lead. It would be th from which downwards the grad secondary and primary schools woul lated. Below this school leaving exa Imperial Matriculation, there might b certificate examination for such pupil necessarily, from one cause or ano school at an earlier age. The general s this should, in like manner, be unifor out the Empire, so that to whatever E session the owner of such a certificate r he would find a ready recognition and understanding of his educational qu It is evident that for the successful d of such a scheme in the first instanc more for the successful maintenance o ing efficiency, various things are neces

First, the general basis of the imperi lation must be such as to offer a fairly of subjects, of which a minimum num be universally compulsory, and a fu mum number be compulsory alternat first group of subjects with various co from the second group would comprise sary imperial matriculation standard, to any British university, the particul to which the student would be entitled sion being determined by the subject the second group.

Secondly, the provision of a centra Education Office, one of the function would be to act as a moderator in th matriculation.

Thirdly, regular Imperial Educat ferences for the discussion of alter modifications necessitated by the pr educational theory and practice.

Fourthly, the scheme should prob room for the inclusion in the curricul particular British possession of some subjects) that might with advantage there but would not be of special se where.

Fifthly, a necessarily concomitan scheme for the qualification required fo diplomas.

Some such scheme as the above wo possible, far more possible than und

the passage of a pupil from a school
te to a school in another, the passage
er from one Education Department to
id would aid in strengthening the bonds
by the establishment of an educational
rps, limited in its influence only by the
the British possessions.

such interchange of pupils or teachers
, or even how far the interchange of
or of university professors, would
Empire's education is a matter of
the first place, but of experiment in the
chemes have been mooted of inter-
pupils—the scheme provided by the will
Mr. Cecil Rhodes to enable colonial
study at Oxford is in successful opera-
examples have been known of tem-
pointments of administrative officials.
siderations on these points may be here
ed.

the interests of the pupil are best
carrying through his education as far
under constant conditions. No in-
le number of pupils are sent, however,
of the colonies to complete their educa-
gland, and the transition would be more
ted under the conditions that a normali-
tandards would ensure than under such
nt prevail.

rchange of teachers must be considered
heads, temporary interchanges and
more permanent character. The ad-
of temporary interchanges are very
le. The conditions of life, with their
in climate, habits, and customs of the
lifferent temperaments and character-
the pupils, involve some study and
similation before the teacher's work in
vironment can be as efficient as in the
any mistakes may be made and friction
ore this point is reached. Changes of
rmanent character may prove, indeed
proved, advantageous to the country
the immigrant teacher, who may often
a new element, or re-introduce a for-
nt of view, and thus add new vitality
alise some part of the system.

rchange of inspectors or members of
strative staff is fraught with more risk
of teachers, because the evil effects of
more far-reaching. Probably no tem-
pector should hold his post for less
years, and part of his first year would
e spent in observation and assimilation
commenced routine work and actual
tive inspection. The same, *mutatis*
would in most cases apply to temporary
nts to the administrative staff. Cases
quoted from the colonies to show that
ases where the appointments have been
bout two years, excellent results have
ith permanent benefit to the colony,
orter appointment has perhaps left a
f error to be weeded out after the
tirement.

The advantages that might accrue from an interchange of university professors or lecturers are twofold. First, students who could not leave their country would be enabled to hear and meet men prominent by reason of their learning or their personal influence; secondly, university teachers of such subjects as biology, zoology, anthropology, politics, economics, &c., would have the opportunity of making a personal and direct local study of branches of their respective subjects.

Apart, however, from actual appointments to temporary responsibility, observational visits of teachers, inspectors, or officials, even though such visits be of short duration, could but be of advantage, and, in most cases, of advantage to both sides. Comparisons of methods, aims, and ideals, as well as of results, would be helpful to both sides, and would tend to eradicate the abnormalities without destroying the individualities of the various departments.

Liberty in action combined with unity in aim must be the essentials of any such scheme of federation. This must apply not only to the general basis but also to such details as the choice of apparatus and text-books. Here again a central office might do good work in disseminating information on the productions of the various colonies, whereby originality and successful authorship might benefit the whole Empire instead of, as is often the case at present, benefiting only the country of origin.

The Central Office would be, indeed, the central fact of the whole scheme. Intercommunication could only be successfully maintained through such a channel. Its work would be multifarious and its organisation necessarily complex, but, in the interests of utility, not complicated. It would be a sort of Perpetual Imperial Mosely Commission, combining in its functions the passivity of accumulating facts and the activity of suggesting courses of action, or of passing round for criticism courses of action suggested from outside.

Idealistic will be, perhaps, the adjective applied to all this by some critics, or others will deprecatingly label it "made in Germany." Neither criticism is, however, condemnatory. So long as a nation's success is largely dependent on the people's education, so long as an empire's strength is held to be increased by some form of federation, so long will it be possible to increase an empire's power and knit closer the bonds of unity by some form of federated education.

Elementary Science for Pupil Teachers. By W. T. Clough and A. E. Dunstan. 183 pp. (Methuen.) 2*s*.—This volume covers the *general science* portion of the syllabus in elementary science for the preliminary examination for the certificate, and it will meet satisfactorily the requirements of candidates. The collaboration of the authors does not appear to have been sufficiently close; thus, more than two pages (pp. 65–7) on the *effect of heat on water*, in the physics section, are reproduced almost verbatim in the chemical section (pp. 135–7). In this manner valuable space has been lost.

THE EMPIRE AND THE SCHOOLS.

By F. J. C. HEARNSHAW, M.A., LL.M., F.R.Hist.Soc.
Professor of History in the Hartley University College, Southampton, and Member of the Council of the Historical Association.

A FEW years ago we were all, according to the late Sir William Harcourt, Socialists. Now we are all Imperialists. So strong a feeling for empire is to-day everywhere manifested, whether on platform or in Press, in churches or in schools, that it is difficult to realise that it was only yesterday that enthusiasm took the place of indifference, and only the day-before-yesterday that indifference supplanted active hostility. To give more precise dates, in the fifties and sixties of the last century, the colonies were regarded with energetic dislike. They were looked upon as turbulent and discontented children, impecunious and petulant, some of them doubtfully legitimate. They continually embroiled the mother country in vexatious quarrels, in harassing and unremunerative wars. They yielded small return in gratitude, or markets, or support. Hence in 1852 Mr. Disraeli voiced the general sentiment of England when he said: "These wretched colonies . . . are a millstone round our necks."

In 1855 Lord Palmerston, when he temporarily took charge of the Colonial Office, professed an ostentatious ignorance of the very names and geographical situations of the colonies whose affairs he was to administer. About the same time Sir George Cornewall Lewis condemned colonial possessions as useless and dangerous; Dr. Congreve urged our recession of Gibraltar to Spain and our retirement from India; a Committee of the House of Commons advised our withdrawal from the West Indies; while Lord Thring actually drafted a Bill for cutting the colonies adrift. But perhaps the most remarkable testimony of all was that of Lord Blachford, who was permanent Under-Secretary for the Colonies from 1859 to 1871. In a letter written so late as 1885, he said:

> I had always believed—and the belief has so confirmed and consolidated itself that I can hardly realise the possibility of anyone thinking the contrary—that the destiny of our colonies is independence, and that in this point of view the function of the Colonial Office is to secure that our connection while it lasts shall be as profitable to both parties and our separation when it comes as amicable as possible.

But Lord Blachford, when in his retirement he wrote these words, was even then giving expression to an obsolete opinion. Long before 1885 the leaders of English political thought had begun to view the colonies with other eyes. On the one hand they saw the British dominions beyond the seas developing in prosperity and power, establishing themelves in orderly government and self-sufficiency, a heritage not to be lightly abandoned; on the other hand they realised that the day of small nations was passing away, that the era of *empires had dawned*. The unparalleled expansion of Russia and the United States, in both and population, during the first three qu the nineteenth century had indeed force old Powers of Western Europe to recog fact that the long-established "bal power" was irretrievably destroyed. C France, Italy, all started to scramble for the raw material of empire. With them ism became, as Mr. J. M. Robertson h defined it, "the love of more country."

Great Britain, fortunately, had not to that late date the task of laying the fou of empire. Her unregarded sons duri generations of unrecognised toil had d for her. But she had, amid the profound ence of her insular proletariat, to unde hardly less onerous task of forming ou infinitely various and widely scattered and dependencies a Federated Emp W. E. Forster, Sir Charles Dilke, Lord von, Mr. J. A. Froude, Prof. Seeley, Lor son, were pioneers of the imperial the late seventies and early eighties th and wrote with unceasing devotion on the new political gospel.

In 1883 appeared Seeley's epoch-mal tures on the Expansion of England; in Imperial Federation League was formed Mr. Froude published his "Oceana," a ing product of zeal, enthusiasm, indiscre error. Lord Rosebery took up the caus pire; Mr. G. R. Parkin began his series of ary journeys; Mr. Rudyard Kipling bu into imperial song. Finally Mr. Josep berlain transferred the abilities which he devoted to the improvement of Birming the establishment of an English republi consolidation of Greater Britain and th ing of a world-wide British dominion. I speech delivered at Johannesburg in 1903, he said:

> The day of small kingdoms with petty je past. The future is with the great empires. T greater empire than the British Empire. T country has set the example. She has thro apathy and indifference of past generations. do we hear of statesmen to whom separation colonies is almost an object of desire. The their part have reciprocated that feeling. abandoned provincialism, and are agreed to part in the glorious empire which is theirs ours. They are ready to take the obligations with privileges. That is the spirit which exists I desire shall continue. Let us say with the col
>
> "Unite the Empire, make it stand compa
> Shoulder to shoulder; let its members f
> The touch of human brotherhood, and ac
> As one great nation, true and strong as

When Mr. Chamberlain spoke, indeed a little owing to his rousing energy, th gandist work of a quarter of a century accomplished; the British public had at stirred; the nation had become imperi

The adult part of the population ha

ted, the question inevitably arose: ie infant mind be trained in the true ed? The supply of imperial text- miserably inadequate. One writer, dward, of Liverpool, had said in

nation treats its national history with ard as Englishmen. It surprises foreigners phlegmatically we ignore the story of inion, an unconcern which reacts inevit- r schools of all types and grades. If instance, had such a history as ours, it entral object round which all their national l revolve.

owever, as the fire of imperial enthu- lly kindled throughout Great Britain onies—that is, to speak generally, eriod of the critical conflict in South writers and publishers set to work iligence to fill up the blanks in im- ure. As the result of their labours oach is entirely wiped away. Not elf, that educational paragon, can or more varied collection of material ruction of the rising generation in ory, geography, and civics.

nt year, 1907, however, a special sionary propaganda is being made, e naturally and properly. It is pre- undred years since Virginia, the first nglish settlement, was founded; it is turies since the consummation of the land and Scotland; it is the first cen- abolition of the slave-trade; while the self has been made notable by the f the most important Colonial Con- odern times. This is, therefore, pre- jubilee-year of Empire. In the cir- it is not surprising that various ands of imperial-educationists are xtraordinary, if not always judicious, e Victoria League is continuing and good work of informing the people er country concerning the colonies, ple of the colonies concerning the try. The League of the Empire 1901), backed by a gift of £5,000 Mr. Louis Spitzel, is embarking on publication of "a graded series of n the Empire, which shall not only outh of the Empire with first-hand but through the financial value of ns provide a fund for the advance- ation throughout the Empire, wher- s shall be used." Finally the Lord ndon and an influential body of repre- n inaugurated in the Guildhall, on of the current year, an "Empire und"—towards which the Princess been instrumental in obtaining some provide lantern slides, arrange lec- e books of information, &c., &c., con- Empire. Truly we have moved far israeli and Palmerston position of go!

But, while it is gratifying to see imperial organisations with thousands of pounds at their disposal actively employed in disseminating instruction and fostering enthusiasm, it is to be feared that there is a danger that the possession of large definitely-allocated funds will lead to a good deal of overlapping, competition, and waste, especially as some of those who at the present moment are most conspicuous in zeal are least conspicuous in knowledge of what has already been accomplished. For example, Mr. A. H. P. Stoneham, who was prominent at the Guildhall meeting, had, he professes, found "great trouble in obtaining an up-to-date map of the world showing all the possessions of Great Britain." Considering that the wholly admirable Navy League map, the excellent Howard Vincent map, and the ingenious and valuable Macaulay map—all up-to-date and exhaustive—can be obtained through any bookseller, one can only conclude that Mr. Stoneham found "great trouble" in discovering these maps only because he did not read the educational papers in which they are freely advertised and did not know where to inquire. The same conclusion is forced upon one when one reads that Mr. Stoneham experienced equal difficulty in unearthing "a suitable text-book for the use of teachers in the schools," especially when he confesses that, as the result of his toilsome and distressful searchings, he succeeded in finding only —"The Emigrants' Handbook to the Colonies"!

It is clear that Mr. Stoneham—whatever may be the case with the other administrators of the Empire Education Fund—is some five years behind the times. One suspects, too, that the History Section of the League of the Empire, which is controlling the "Imperial Text-Book Scheme," will find some difficulty in discovering a sphere of enterprise which has not been effectively surveyed and worked, during the past five years, by more than one energetic author and publisher. The "great trouble" to-day, in fact, is not to find suitable text-books, but to choose from among the immense number, excellent in form and contents, which private enterprise has placed upon the educational market. I propose to close my article by giving (so far as my knowledge goes) a summary list under the names of the several publishers (arranged in alphabetical order) of the more useful and important books, with other materials, designed to further the knowledge of the Empire and a recognition of the duties of citizenship.

BIBLIOGRAPHY.

I. Mr. Edward Arnold.

(1) *Home and Abroad Readers, Book IV.*; *Gateways to History, Book IV.*; *Steps to Literature, Book IV.* 1s. 6d. each. These are three volumes in Mr. Arnold's series of co-ordinated readers. The first deals with the geography, the second with the history, the third with the literature of the Empire. That they are up to date is shown by the fact that among the provinces of Canada are mentioned Alberta and Saskatchewan, which were raised to that dignity only in 1905.

(2) *The Australian Commonwealth* and *The New Zealand Colony*. 1s. each.

(3) *The Romance of Empire*. By Philip Gibbs. 5s. An ideal prize-book or gift-book for a boy. In seventy-three chapters it describes the heroic and dramatic incidents which have marked the development of the Empire from the days of Raleigh to those of Lord Roberts.

II. Messrs. G. W. Bacon and Co.

(1) *Excelsior Map of the World*. 15s. A special "British Empire Edition" with all British dominions marked in red.

(2) *Elementary Map of the World*. 12s. A simpler wall map for junior classes.

(3) *Atlases of British Empire* at various prices.

III. Messrs. A. and C. Black.

(1) *Descriptive Geography of the British Empire*. By F. D. Herbertson. 2s. 6d. This book, with its forty illustrations, takes the reader as on a journey through the Empire, depicting and informing by the way.

(2) *Prof. Lyde's Geographical Readers* (1s. 4d.) include one, No. iv.c, dealing exclusively with the British Empire.

(3) *Black's Literary Readers* (1s.) have just begun to appear. The special feature of four of them is announced to be that "an attempt is made to show how Britain came by her world-wide Empire."

IV. Messrs. Blackie and Sons.

(1) *A Survey of the British Empire*. 2s. An account, historical, geographical, and commercial, of the building of the colonies.

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V. The Cambridge University Press.

(1) *The Expansion of the British Empire*, 1500–1870. By W. H. Woodward. 4s. A standard work of 326 pages giving a full, lucid, and interesting narrative of the whole course of imperial history; one of the most useful text-books available. There is also an abbreviated edition for the use of junior forms at 1s. 6d.

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of the British Empire. By G. F. Bosworth. a history of England, but the later chapters ch of imperial developments.

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phy of the British Colonies. By G. M. Alexander Sutherland. 2*s.* A remarkably ary text-book by writers who are men of in Canada, the other in Australia.

izen and the State. Three useful text-books ie first, " Representative Government," by r (1*s.* 6*d.*), deals with the English Constitution, local and central; the second, " Industrial and Social Life and the Empire," by J. St. Loe Strachey (1*s.* 6*d.*), treats of economic and imperial affairs; the third, " The English Citizen," by C. H. Wyatt (2*s.*), defines the rights and duties of the subject.

(8) *The Globe Geography Readers.* By Vincent T. Murché. The " Intermediate Book " (2*s.*) deals with " Our Island Home "; the " Senior Book " (2*s.* 6*d.*) with " Our World-wide Empire." The illustrations, many of them coloured, are a notable feature of these attractive volumes.

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XV. MESSRS. METHUEN AND CO.

(1) *A Historical Geography of the British Empire*, by Hereford B. George (3*s.* 6*d*), occupies a place apart, as showing the intimate connection between geography and history in the development of the Empire.

(2) *The Student's Historical and Modern Atlas of the British Empire.* By C. G. Robertson and J. G. Bartholomew. 4*s.* 6*d.* net. This complete and accurate atlas contains, besides sixty-three maps and plans, a historical gazetteer, statistical tables, and a useful geographical bibliography.

(3) *British Colonial Policy.* By H. E. Egerton. 10*s.* 6*d.* A book indispensable to the teacher who wishes to go behind the events of colonial history to the ideas and purposes which determined them.

(4) *The Rights and Duties of a Citizen.* By H. E. Malden. 1*s.* 6*d.* The closing chapters deal with army, navy, and empire.

XVI. MR. JOHN MURRAY.

(1) *The Growth of the Empire.* By A. W. Jose. 4*s.* 6*d.* A finely written, fascinatingly interesting, and most inspiring history of the expansion of England. No better preliminary survey need be desired.

(2) *Britain over the Sea.* By Elizabeth Lee. 2*s.* 6*d.* A reader for schools, containing many interesting passages from original sources of knowledge of the Empire.

(3) *English Colonisation and Empire.* By Alfred Caldecott. 3*s.* 6*d.* An original and suggestive study of the history of the Empire from the point of view of the philosopher to whom political science, political economy, and ethnology are subjects of prime importance.

(4) *The Rise of the British Dominion in India.* By Sir Alfred Lyall. 3*s.* 6*d.* One of our best brief authorities on its subject.

(5) *The " Empire League " Publications.* 2*s.* 6*d.* each. A series of text-books issued under the auspices of the League of the Empire. Up to the present two volumes have been published. One is called " Empire Builders," by W. K. Stride; it contains biographical sketches

of Alfred the Great, Drake, Clive, Wolfe, Hawke, and Cook—a somewhat eccentric selection. The other is termed "Colonisation and Empire," by F. A. Kirkpatrick; it consists of six lectures on the period 1600–1783. It is interesting to note that each lecture is accompanied by a list of illustrative lantern-slides, and that these slides can be hired from the offices of the League.

(6) *History and Geography of the Empire*, by E. F. Knight, a work embodying much research and enlivened by many first-hand descriptive sketches, is in active preparation.

XVII. Oxford University Press.

(1) *The Origin and Growth of the English Colonies.* By H. E. Egerton. 2*s.* 6*d.* A preparatory sketch by the new Professor of Colonial History at Oxford.

(2) *A Historical Geography of the British Colonies.* By C. P. Lucas. Six volumes ranging in price from 5*s.* to 9*s.* 6*d.* each; the whole, 43*s.* The fullest storehouse of information concerning the Empire in detail, especially the West Indies and other scattered possessions.

XVIII. Mr. Edward Stanford.

(1) *Map of the British Colonies and Possessions*, 1902, on a uniform scale. 13*s.* This is not a map of the world. Only the component parts of the Empire are given, each in a separate panel.

(2) *Companion Map to the above showing the Empire in* 1837. 13*s.*

The above are the principal "empire books" useful to teachers with which I am acquainted. I think it will be admitted that in respect of them the main difficulty is that of selection. Yet in spite of their number and variety I must mention one or two additional works valuable for reference. Those who wish to supplement their text-books with the latest facts and figures would do well to secure copies of the current annual volumes of the "Colonial Office List" and the "India Office List" (Harrison and Sons, 10*s.* 6*d.* each), or to consult Dr. Scott Keltie's encyclopædic "Statesman's Year Book" (Macmillan, 10*s.* 6*d.*). In 1892 a very handy "Colonial Chronology," by Mr. H. J. Robinson, was published by Messrs. Lawrence and Bullen, but I believe that it is now out of print. In conclusion, I shall be very grateful to publishers, authors, and others, who will tell me of useful works not mentioned in the above lists.

THE PRELIMINARY EDUCATION OF ELEMENTARY SCHOOL TEACHERS.

I. From the Point of View of the Secondary School.

By S. Elford, M.A.
Headmaster, Coopers' Company's School, Bow, E.

MR. MORANT, in the prefatory memorandum to the new regulations, whilst paying tribute to the way in which secondary schools all over the country have co-operated with local authorities in providing a more thorough and efficient education for elementary-school teachers, admits that the practical difficulties are many and real, and it is to obviate some of these that the new regulations have been framed. They seem, however, rather to provide for an additional source of elementary-school teachers prove the present state of affairs.

Under the existing pupil-teacher chief difficulty the secondary school tend with is the absence of the pupil the school for a whole term from t though this is preferable to the absen days in every week, as was the case i schools a few years ago.

To frame a time-table and curricu the requirements and satisfy the Boa tion under the Regulations for Secon alone is a difficult matter, but to arr efficient and economical working o and at the same time to conform Regulations for Secondary Schools gulations for Pupil Teachers is much to these are now added a third set o with which the headmaster must r familiar.

For some part of the year the fo the pupil teachers are placed are c either the remnant remaining in th to a certain extent mark time, c teachers on rejoining the school period of practical teaching must l their scheme of work, to be filled or sion offers. Either the pupil teach certain measure be sacrificed to t scholar, or the ordinary scholar teacher.

Where there is a sufficiently larg pupil teachers attending the school formed into a class or classes by the then they are apt to form a clique a with the school life, and so fail to c the chief benefits they are expected tc a secondary-school education; m teacher in charge of them is for a w a time practically without any reg ment.

As a solution to this state of affair of Education proposes the appointme sars." It is to be feared that the p in no way meet the difficulties, thou supply to a very limited extent a source of teachers.

The bursars (to be between the ag and eighteen) may be recommended fo the local education authority if certifie prove suitable both mentally and phy headmaster, and if they have also be by H.M. inspector. They must ha two years, and after August, 1909, fo previously in the secondary school. ceive free tuition for one year, and time will be expected to pass some p nation which will qualify them for a a training college. They will als maintenance bursary, in part prov Board of Education and in part l authority, but the value of this is t the financial position of the parent. tions impress on the local authority due economy in awarding this main

egin with, at any rate, the amount to exceed £10 per annum, £5 of contributed by the Board, and the so have to submit to some form of

will also pay a grant of £10 per r certain conditions to the local addition to the £5 towards main- will also allow £2 towards examina- , but only if the candidate is entered leaving examination conducted by a nd provided it is of not less than standard.

of his year's tuition, if he is over rs of age, the bursar may proceed aining college, the age of admission ing lowered by a year if he is under if there are no vacancies in the ge he can be employed as a student welve months (chap. vii. of the Re- ter which period of service he can be s an uncertificated teacher.

system, if it entirely superseded the method of entering the teaching pro- d ensure the future teacher at least s uninterrupted tuition in a secondary his, from the school point of view at ery desirable. However, the bursar ly to be tentative, and an optional the pupil-teacher system. It is evi- e Board does not contemplate the g the place of the latter, because the ons also provide for preparatory ys and girls intending to become s.

ing supply of elementary-school carcely adequate, and it is hardly to that local authorities will run any way with one means of supply until certain that the new one will prove t. Consequently they will regard nly as a means of augmenting the ly rather than of taking its place.

feared that but few will take advan- ew facilities. Parents naturally look on from a financial point of view. cher does earn a small but progres- uring the time of his indenture irre- is parent's income. The bursar will nparatively small maintenance grant rsely with his father's income. In s, where secondary schools are small far between, the number of bursars ly be small.

nitely and finally decided that it is to erests, not only of the elementary- ers themselves, but of elementary nerally, for teachers to receive their education in secondary schools, the ess seems to be to make the bursar t the only, at any rate the main source t then it must be under more liberal The reply to this will be that unless r teacher young and bind him down t him at all. As things are at present there is a good deal of truth in this. But why? There is no dearth of candidates for those snares and delusions, temporary boy clerkships. There are thousands of candidates each year for a few hundred vacancies in the second division Civil Service clerkships.

In my own school of some 500 middle and lower middle class boys every third or fourth parent, when entering his son, tells me that he wishes him to enter the Civil Service. In four years only two boys, exclusive of county scholars or probationers, have taken up elementary teaching. The reason for this is twofold. Parents know little or nothing about the advantages or disadvantages of teaching as a profession. Cheap guides to the Civil Service are published and are in everyone's hands. The London County Council certainly does publish a *Gazette* each week, but it reaches only a limited number, and in it appear details of every branch of employment under the County Council—including education. If a parent's attention is drawn to the teaching profession as a career for his son, and he asks for printed particulars and is referred to the *Gazette,* he decides that his son shall take up some other branch of the public service set forth in the *Gazette* and perhaps a little better paid. There seems to be need for the local authorities to print and circulate freely, by means of the schools, secondary and elementary, if thought desirable, a clear and concise statement of the various methods of becoming an elementary-school teacher, the conditions of service, salaries, and prospects, &c. This must be set forth in simple and not official language, must not require expert interpretation, and must be easily understood by the man in the street.

The second reason is the financial one. It must be remembered that elementary-school teachers will always be drawn to a great extent from a class that have to keep up appearances on incomes frequently far less than those of mechanics and artificers, and who are unwilling and often unable to maintain their children, at any rate the elder ones, beyond a certain age. A fairly smart boy of fifteen can generally earn from 10*s.* to 15*s.* a week as a junior in a city office, though his future prospects as a clerk are not very promising. Many parents are compelled to sacrifice the future of their children to the needs of the moment, and the father excuses or justifies the withdrawal of his son from school at so early an age, and the placing him in a situation that offers but little prospect, by stating that the boy can continue his education at evening classes, and work on with a view of eventually reaching the goal of a second division clerkship.

If parents are to be brought to regard teaching as a suitable career for their sons, the conditions must be such that the training does not fall too heavily on the parent, and the embryo teacher must receive during his period of training a sum, either as a bursary or a maintenance grant, somewhat approaching that which he could expect to earn in other walks of life. The class that will take up elementary-school teaching want to, and

often must, become practically self-supporting at an early age, and so more generous treatment is necessary.

The whole question bristles with difficulties, and a solution has yet to be found. Schemes that will answer in towns are useless in country districts, and *vice versa*. The Board of Education, instead of facing the question and devising new machinery to meet the new conditions, has been tinkering with the old. The present state of affairs may be likened to a motor-car, the machinery of which has broken down, being towed by a horse; it is certainly progressing along the road but not at all in the way it should.

II. From the Point of View of the Training College.

By J. W. Jarvis,
St. Mark's College, Chelsea.

"The old order changeth, yielding place to new." The pupil-teacher system was established in 1846, it was re-modelled in 1903, and the regulations just issued introduce another new system to remedy the defects created by the last improvement. Formerly a pupil teacher in attendance for instruction in a secondary school was obliged to spend a certain portion of each year in an elementary school in order to obtain practical acquaintance with the art of teaching. This part-time attendance proved a difficulty in the way of the proper organisation of secondary schools, and now the experiment is to be tried of arranging for intending elementary-school teachers to receive continuous education in the secondary schools, and to defer attempting practical work until they have completed their course of instruction. This resembles the American system common in nearly all of the States of only admitting graduates from high schools to the normal colleges. These new people are to be called bursars, and they are to be admitted to a qualifying preliminary examination between the ages of sixteen and seventeen. The minimum age of admission to a training college is to be reduced to seventeen, so that they may pass straight into the training college at the close of their period of bursarship.

Now comes a new problem which will have to be faced by the training college authorities. As these bursars are tyros in their art, it will be necessary for the colleges which undertake their training to provide for them considerably longer periods of practice than are generally provided in the case of students who have been pupil teachers. In other words, there will be a reduction of time spent on academic work and an increase in the time spent on the professional side, so our colleges will be expected to adapt themselves to a new environment. As a corollary to this, local authorities who control elementary schools suitable for use as practising schools are reminded that the supply of properly qualified teachers will in future depend largely on their generous co-operation with training colleges, in making these schools available for the purpose. As, however, we are not a logical people, the Board of Educatic immediately made a rule, begins to a exceptions, and it suggests that thos who do not see their way to enter colleg may be employed in schools under the s of competent head teachers for not mc year as student teachers.

We shall thus have two streams of flowing into our training colleges: one, free from any professional taint, from school; and another, stained with a ye may be two years' experience of teachi in the elementary school. That much w be done for the first to make thei teachers no one will deny, and it is wit are taking a leap in the dark. Until person has come into actual contact wit he scarcely realises the responsibili teacher, and he may desire to leave the for which he has been chosen and trai may prove very unsuitable for it.

The second class, having had a yea ence, may decide not to enter a trainii and thus commit themselves to a cal may be distasteful to them in after life. a great deal in the daily routine of a sc can only be gained by experience and nected with the giving of lessons, and possible for a man to be capable of gi lent lessons, and yet to be thoroughly able in the presence of a class, and quit in his management of work throughou The gifts of arranging a day's work, (ing fast pupils and of driving slow ones ciating modest efforts and of depreciа boldness, of giving decisions to meet a of justice, and of influencing character only cultivated on the spot by attrition, the lecture-room. This is where the experiment lies, and where the trainii will have to rise to a high sense of sibility thrown upon them. The natio doubt, however, that a bold attempt w to help the Board of Education, for the in charge of these institutions are mo sive, more alert to the needs of the cc more desirous of improving the p standard of their pupils than the gen are aware. The difficulties they have c the past have been considerable, and worked wonders with the most u material.

Now let us get to closer quarters new people. Some will leave the secon at seventeen years of age, and, having preliminary examination for the elemer teacher's certificate or an equivalent e: will become teachers for one or two ye: days a week. On the remaining day proceed with such further general e(may be available to the satisfaction of a of the Board. Are they likely to proc or to stand still? If they stand still, come to the training college at ninete their forgotten lore will have to be re

ave the academic side developed and
and again crowding out and over-
professional, and to those inside the
a serious risk. It is not undertaken
tern cousins, for they frankly declare
l schools to be professional training
and no priest or Levite could pass by
stinctions more unheedingly than they.
teen examinations named in the list
y students to become teachers, half in-
ulation studies. These most naturally
should lead to graduation, and so our
have as an inducement for further
bition to acquire a degree. Will this
nd difficult work also allow them to
time and energy in prosecuting their
ining?
of the excluded middle tells us that
ust either be or not be, and in practice
that a man who is keenly following
n of study will not allow himself to be
r diverted from his course by the
d perplexities of professional training.
hing is much more subtle and scientific
to be; it has an ever-increasing litera-
peculations and ranges of thought be-
eams of the early schoolmasters, and
is receiving the attention of serious
hese things the aspirant for an
gree must pass by because they do not
n assessable value to him. Let us
e Board of Education will see its way
a diploma or certificate which shall
educational world a high value, and
a man for any post in his profession
elementary or secondary schools,
wider fields of superintendence or

bursars who leave the school for the
ege, there will be no break in their
no acquaintance with the practical
future. Only in the margin of con-
ill there be a desire that when their
udy is over, it will be their duty to
nowledge to others. Hence the need
iods of practice and for close con-
ild life. This question is not solved
rowing open the schools in the neigh-
the training colleges, however sym-
generous a local authority may be.
class-room school is so completely
at a visiting student cannot acquire
art by imparting instruction to a
the control of the class-master, who
es care that as little time as possible
his visitor's incapacity. To prevent
defect, in some American practising
eacher is placed in charge of two
e large room, a student is allotted to
and he (or rather she in America)
oom while the students are carrying
work of the school. We shall have
inst our students being side-tracked
nasters, and we shall have to devise
placing them in the forefront of the
battle while they are winning their spurs. In the end perhaps it may be a good thing if our teachers become slightly less efficient. May we not do too much for the pupil; are not his difficulties too clearly explained; are not his rough places so smoothed that there is nothing left for him to do but to expose himself to the gentle stream of information so carefully poured upon him, and he will pass through all his grades of learning? So, should this experiment not succeed, the failure will be a blessing if it lead to a stiffening and invigorating of the mental muscles of the human boy.

THE REFORM OF EXAMINATIONS.

By C. M. Stuart, M.A.
Headmaster of St. Dunstan's College, Catford, S.E.

THE London division of the Incorporated Association of Headmasters has adopted the report—printed on p. 225 of the present issue—drawn up by a sub-committee, containing suggestions for modifying the L.C.C. Intermediate Scholarship examination.

The general recognition of the principles enunciated in this report would produce a very considerable modification in the practice of examining bodies generally. In the past, such bodies, partly with the laudable intention of making their methods as public as possible, but also partly with the idea of saving themselves trouble, have laid down very definite and precise rules as to what subjects and subdivisions of subjects each candidate may take; what percentage of marks is allowed for each subject, even for each question; what periods in history, what books in literature, what experiments in science the candidate is recommended to "get up." The idea that a candidate should be encouraged to read generally, and to show in the examination not only his knowledge, but his originality, is entirely absent from the syllabus of most examinations.

At present boys are not educated; they are "prepared for examination." If the examinations were conducted on proper principles, if they were wide enough in their scope, if they were unfettered by marks, if no special books were set, and if general study were more encouraged, preparation for examinations would become obsolete. The proper examination is one which a boy can take "in his stride," that is, without special preparation, and there are but few examinations which approximately fulfil this condition.

But, it may be objected, the wide method of examination which you recommend is all very well for the advanced boys who enter for university scholarships, but it cannot be adopted in the case of young boys whose knowledge is more limited. Very well; then the moral is, not that a precise and rigid syllabus should be published for examination, but that the examination should be abandoned: an examination which cannot be conducted on the best lines should be discontinued altogether; and if those intelligent bodies who hold competitive examinations and give honour

certificates to boys under sixteen, or even under fourteen, would only realise the enormous harm they are doing—but that is another story.

The L.C.C. intermediate scholarships are intended for boys of from sixteen to seventeen years of age; that is, for those whose school career will shortly end, and who anticipate utilising their scholarship to take them to some college or institution of university rank. Such boys may not unreasonably be supposed to have chosen their special subjects of study, and the examination should be such as to select those who show promise in the subject chosen; it should, in fact, encourage special aptitudes.

Now the notion of specialisation appears to be anathema to the great majority of schoolmasters, and to all educational authorities. "A good general education" is the shibboleth which is used to crush all attempts at developing originality. It was under the name of "a good general education" that we at Harrow (in the seventies) had twelve hours' Latin and ten hours' Greek in a twenty-four hours' time-table. It is after receiving "a good general education" that boys of fifteen and sixteen are sent to us now, who have never done any science, and have never heard of practical arithmetic, and it is probably under the idea of "a good general education" that the present L.C.C. intermediate scholarship examination insists on a general hotchpotch of small subdivisions of elementary subjects, single poems or plays by way of literature, limited periods in history, and individual experiments in chemistry.

The boy who obtains a scholarship on this work is usually very plodding, very diligent, and conspicuously devoid of originality; he will produce exquisitely written and laboriously prepared essays and notes, but he sits silent in conversational modern language classes, and when he is asked in science classes, "What do you learn from this?" replies, or thinks, "How can I tell? I've never done it before; but if you'll tell me, I'll take good care to remember it." We once heard it expressed, "the boy who gets an intermediate scholarship is not the sort of fellow with whom you would care to be cast on a desert island."

Far from discouraging specialisation, we believe that the chief duty of the schoolmaster is to look out for any special aptitudes or instincts in his boys, and to encourage them to the utmost. Such special aptitudes are not common, but when found they generally mean genius, only the specialisation must be developed on rational lines. The specialisation which is encouraged by the present system of examination is altogether on too narrow lines. A boy of seventeen might be reasonably expected to have read, not only the history of his own country, but some of the general history of Europe; our history scholar is, however, now limited to one particular period of one country.

The objection has still more force in the science division; a boy can get a scholarship in science on chemistry and mechanics, and r lutely ignorant of heat, light, soun tricity. Further, in chemistry his k volumetric work may be limited to t ment of acid and alkali. A paralle would be that in an examination on th of England all personal observati limited to the Ripley road.

Another innovation that is recomm report is the secondary value assign Marks are good servants, but bad ma of the marks gained by a set of can single paper assists an examiner to re to see at a glance the comparative n candidate on that paper; but a comp marks in dissimilar subjects has no and when candidates have to choose according to value of marks assigne becomes preposterous. To take the the committee recommends that n should be placed on the number of sub and it anticipates that candidates themselves especially to *cognate* s mathematical candidate will take nc mathematics, but also applied math experimental mechanics, with prc physics; the scientific candidate will try with all branches of physics and mathematics; the linguistic candida any languages, ancient or modern, v had the opportunity of learning.

When the examiners in each of th sions meet, after looking over the examiner will keep his own marks to the question before them will be: " dates show style and promise? Wh have shown that they can not only re think in their subject?" It is t superior intelligence will be readily whether a candidate has entered fo or for six, quite irrespective of his tc

It may be objected that such an would involve much greater work aminers; well, if it is to make a be there is no great harm in that, bu remembered that far too many can been compelled to enter for this ex the past. The County Council ha been of opinion that every one of requires to be examined, and that any will do. Junior scholars are compe for intermediate scholarships who h chance of obtaining one than of be angels. A junior scholar once said master: "I want to remain at scho but to do so I must promise to e intermediate. I know I've got n getting an intermediate, and I woul if they were to offer it, for I've got in an office promised to me in Sept want to get on with my shorthand languages." "All right," said the "you have got to enter for the e you have not got to pass it, you nee work for it, and it doesn't matter ho

s, so there is no necessity for you to special classes preparing for it." What waste of a boy's time and an examiner's Ve do not enter a boy for a university p unless we think he has a reasonable obtaining one, and the intermediate ps should be regarded in the same way. to the special recommendations on is seen that the committee lays stress oad foundation of scientific knowledge; sful candidates will probably specialise at colleges of university rank, general and general physics are essential. The in the report that "boys are kept for studying chemistry to the exclusion of r electricity to the exclusion of other has given rise to much discussion. It said: "Surely schools do not limit a k solely to the requirements of an ex-, but insist on all branches of science en, whether required for examination or his question each master must answer lf. We believe that schools do very nfine their work to examination require-t the point is not so much what schools at the L.C.C. encourages them to do. a boy approaching seventeen may not bly be supposed to do some private read-favourite subjects, and he cannot be to keep up his reading in the subjects is not taking in the examination.

itation of the syllabus in chemistry, and of the volumetric work, has been al-ntioned. It is an evil inseparable from ction of a precise syllabus. The com-es that he may not be accused of intro-much, and yet he sees the importance tric work, so he introduces one volu-periment, and the study of three metals. syllabus of this kind for boys of seven-mistake; science masters must be d to carry clever boys as far as they ithout this limitation of experiments.

mmittee recommends an oral examina-ience, and it anticipates that this may replace the practical. Practical ex-s in science are never satisfactory; the good practical work is that there must ry; but all examination work is done ne; the candidate is usually in a strange strange apparatus, and all surround-luce to his being flurried. Further, practical work, especially with inex-candidates, depends very often upon o take a simple instance: a frequent is to ask a boy to dissolve a metal in ess in this depends wholly upon the the acid; if too strong, it froths over; k, it does not dissolve in time; there ne, and sometimes not apparatus, to e or four different experiments; conse-is very largely luck whether the correct f acid is hit off the first time. Practical ns are a survival of the days of quali-lysis; now that all work is quantitative they are out of place. A boy must be taught practically, but examined on what he has learnt.

In suggesting that the students' note-books would afford a basis for an oral examination, the committee does not consider that the note-books should be marked for the examination. The examiner would merely utilise the note-books as a means of ascertaining what the candidate had done, and how far he understood what he had written; his questions would not be confined to the note-books, but he would have the opportunity of learning how far a boy was able to apply the reasoning from experiments which he had done to new problems. The principle of taking note-books as a basis of examination or inspection, and questioning the boys, orally or in writing, upon the experiments set forth in them, is cordially recommended to all examiners and inspectors.

The recommendation to discontinue the examination in elementary experimental science is of the greatest importance, and will probably give rise to many different expressions of opinion. We have heard it said that if boys are to do a subject, what can be the harm of requiring an examination in it? Now, we consider that every boy should go through the course of elementary experimental science, but that an examination in it is harmful for the following reason, viz., the course of elementary experimental science was intended to teach *principles*; the examination requires *details*; and we hold that a boy may have gained the full benefit from such a course although he has utterly forgotten the experiments therein. There are few subjects more delightful to teach to boys of twelve and thirteen: in studying it, they are being introduced to a new world; in working with their own hands, and taking their own notes, they are beginning to feel themselves persons of importance. On the other hand, there is no subject so dull for older boys to get up for examination: the work contains nothing new for them, all interest in the results of experiments has long since departed, the principles are perfectly familiar, but master and candidates grind along the weary round of describing experiments suitable for younger boys, of learning to recognise that the same question may be asked in half-a-dozen different ways, and of devising laborious experiments to prove something which is perfectly obvious.

The same argument applies to most examinations in elementary science; those who have had to grind over and over again at the science for the London Matriculation know what deadly drudgery revision of scientific work becomes. Most boys will take an interest in new experiments, or even in old ones repeated for more complete observation, but no one can take an interest in revision of elementary work. The scientific boy wants to get on to something higher; the literary boy prefers his own subject.

We have even heard it suggested that the far-sighted gentlemen who have insisted upon the retention of Greek in the Cambridge Previous are going to prove their broadmindedness by pro-

posing the inclusion of compulsory elementary science. The gods forbid! We have been up with pleasure to vote against compulsory Greek, but we'll go up, if we have to walk the whole way, to vote against compulsory science: for scientific candidates it is unnecessary; for literary ones it is —that is, an examination in it is—drudgery of the worst kind.

THE USE AND MISUSE OF "UNSEENS."[1]

By Prof. G. G. RAMSAY, LL.D.

THE importance attached in Scotland to examinations in unseen work as contrasted with prepared books is quite recent. It dates from the establishment of the present severe preliminary examination for entrance to the universities, which is entirely in unseen work. What has been the effect upon classical teaching of that examination? It has been palpable and admirable. A high standard for admission to the universities has been set up, and in consequence the standard of examination for the degree has been raised in all the old subjects of the course. But what has been the effect upon the classical education of the country, and upon the teaching given in the schools, of making the entrance to the university, so far as languages are concerned, depend entirely upon Grammar, Unseen Translations, and Composition, to the exclusion of prepared books, and of any questions to test a knowledge, however elementary and general, of the history, the life, the literature of ancient Greece and Rome? While highly satisfied by the results of the grammar and composition parts of the preliminary examination, I feel doubts as to the wisdom of confining the translation part of the examination entirely to unseen books.

THE TEACHING OF CLASSICS.

If there is one thing more than another that has been brought out in recent discussions on classical education, it is that if the classics are to keep their hold upon the nation as a main instrument of higher education, it must be by making the teaching of them more real, more living, and less technical than it has tended recently to become. We do not want our boys to study Latin and Greek as linguistic puzzles; we wish them to study classics partly as an introduction to the principles of language in general, and as a potent help towards obtaining a mastery of their own tongue, or of any other they may have to learn; but also, and still more, as an introduction to the great central facts of human life and thought, of history and literature. These facts can be studied most fruitfully in connection with ancient Greece and Rome, because they are there presented in simple fundamental forms, unencumbered by the mass of detail, untainted by the introduction of the many party questions, which make the study of modern life at c difficult and less illuminating for the you Therefore both at school and at the u the great classical authors have to b as much for their matter as for their fo real education to be gained from any g sical book is gained by mastering its understanding its ideas and allusions, what is to be known about the persons a mentioned, comprehending the scope and sion of its being written, and thus le appreciate the beauty of the language a what literature means. For the above careful study of books as a whole is and any examination which fails to whether such a study has been given or in its essential educational object.

How far, then, does an examination of unseen passages for translation provi test? My answer is that it depends lar the stage of proficiency reached by t more largely still upon the question wh an examination has been made the be-a end-all of the teaching which it profess When a really high standard of know been reached, unseens are admirable. test can be applied (alongside of comp discover whether or not a candidate p finished knowledge of the niceties of a no other test throws the candidate s upon his own resources. Hence it is t the highest university and Government tions, whether in ancient or modern l But in examinations of this higher Unseen *does* bring out and test knowle can only have been acquired by a thorough study of many books. No can face an examination for an open scholarship of the first grade without h widely and read carefully. In such ex the candidate must show, in every pie translates, that he understands the me bearing of the passage, its allusions, its its literary and historical setting; if he this, he will fail to give an excellent t and to secure a high place. A good ex no difficulty in discovering whether a is composed of a series of happy o guesses, or is based upon a trained ac with ancient life and literature.

But at an earlier stage of developme is very different. It is of no use to set a to a piece of unseen translation unless h enough in the same kind of style, and i kind of subject, to enable him more or le fully to make his way through the w teacher ought to make sure, before sett seen, that the pupil has material eno mind, and training enough in the lar enable him to cope with it from his exis ledge; and then the exercise is in the hig wholesome and stimulating. But it mistake to put before a boy a mere pu he has not the material in his brain to it is not fair to set him to a hopeless tas

[1] From a paper read at the spring meeting of the Classical Association of Scotland.

that disastrous habit of making shots, guesses, which is destructive of sound progress, and leads to forming habits cy. I have had to look over unseens here was not one word of sense from to end. The true method of teaching cts is to lead the pupil gradually on to step, explaining what is new, and him to make fresh steps for himself where things have been already made n. In the same way, unseens should be gradually, in proportion to the amount and the kind of reading, which the one through. His mind will be braced that he has a problem before him which is strength; whereas nothing is so dis- for him as to feel conscious that he thin him the means of solving the diffi- before him.

The Proposed Change.

probable reform of university arrange- should feel disposed to recommend a hich, without restoring the plan of inite portions of definite books to be might yet encourage scholars to read uthors in the best way. It might be each year that the translations would om certain considerable portions of cer- s. The portions named should be too dmit of being crammed; and the defini- subjects would secure that considerable such authors were read and read care- would introduce also general questions antiquities, and literature, quite of a d easy kind—and with ample alterna- as to make sure that the authors read e been read not merely as exercises in but as an introduction to the real life of reece and Rome. I repeat that unseen s are an excellent exercise for senior r students, and indispensable in honour ons; but they should be used sparingly en, and still more sparingly in the ordin- ulum of schools. Just as it is premature oy to write an essay until he has got in his head to say, so to put an unseen n which goes beyond his reading is to o make bricks without straw.

give amusing and even instructive ex- show how often students who have en the Higher Preliminary have chaotic the principal events, personages, and dinarily encountered in the classics. I a class only one member of which could at was a Tribune of the Plebs. One told Tarquin, Spurius Maelius, and Manlius illed in the wars of Julius Caesar; and reading Horace for a session, students rmed me that Tempe was a watering taly, that Aufidus betrayed the Romans ha, that Patareus was one of the giants led against Jupiter, while another con- n into a Sicilian promontory. Indeed, sometimes have constructed a tolerably complete map of Italy out of the answers to a single proper name, which has been explained by various writers to be a province, a river, a mountain, a town, or even as the name of Horace's favourite young lady. It is very discouraging to find that when a student comes across a word printed with a capital letter, he should hold himself relieved of the responsibility of finding out anything about it at all. Proper names are often thus regarded as negligible quantities; and at every step the appreciation of an author is interfered with by ignorance of elementary facts of history, geography, mythology, all of which might easily be learned at school.

Some instances of the difficulties caused by examinations of this kind to candidates who have not been well grounded in the language are quite pathetic, and instructive also. One candidate not long ago was in sore tribulation. He had been rejected no less than four times for the Preliminary; and the hard thing was, according to his own account, that it was entirely a matter of ill-luck. He had carefully studied previous papers; and going on the law of averages, like scientific players in the gaming-rooms of Monte Carlo, he had each time made up his mind what kind of passage was going to be set next time, and had prepared accordingly. But by a continuous run of bad luck, whenever he had got up all the proper words and phrases for a military piece, a political piece was set; if he got up all possible philosophy or oratorical terms, some homely anecdote in ordinary life was set, with no philosophy or oratory in it.

"Would you never then give unseens at school at all?" it may be asked. By no means; but I would remember that they are mainly for the best scholars in a school, the honour scholars so to say—and that rather as a test of how far a scholar has got, than as a means of instruction. I would never give to a pupil an unseen that was beyond his powers. I would not have him prepared specially for doing them. Like happiness itself, the power to do unseens comes most surely to those who have worked honestly, but without having that particular object in view.

How to Study Wild Flowers. By the Rev. George Henslow. Pp. 235+12 double-paged coloured plates and 57 other illustrations. Third impression with appendix. (Religious Tract Society.) 2*s.* 6*d.*—With the aid of this volume a student can not only become familiar with the majority of the commonest of our wild flowers, but also with the structure and functions of the various parts. Unlike numerous popular books on natural history, in which the descriptions consist largely of sentimental sayings and vague impressions of no educational value or biological significance, this volume aims at training the young naturalist in habits of critical observation and accurate expression. Mr. Henslow shows how flowers should be studied thoughtfully, and not merely contemplated as interesting objects in nature. His book is capable of establishing a sound and useful foundation of botanical knowledge in the minds of all who use it rightly.

THE TEACHING OF COOKERY.

By A. SMITHELLS, F.R.S.
Professor of Chemistry, University of Leeds.

WITH the object of directing "attention to the really inefficient character of much of the cookery instruction now being given to our elementary-school children, and of demonstrating how radically bad are the methods of organisation enforced by various local authorities," the Board of Education has recently issued a Special Report upon Cookery Teaching in Elementary Schools and upon the work of the Training Schools for Cookery Teachers.

It is perhaps as well to let bygones be bygones; otherwise it might be instructive to inquire how far the state of affairs which is so roundly condemned is not attributable to the fact that until quite recently the resources at the Board of Education for organising and supervising the teaching of domestic subjects have been of the most meagre kind. This report might, in fact, be regarded as in no small degree a judgment by the Board on its own neglect. However, there is no doubt that the Board is now earnestly bent upon the object of securing the efficient teaching of cookery in our elementary schools, and it is better to rejoice for the future than to weep for the past. No one who has any knowledge of the homes of the poor, no student of physical degeneration and other social evils is likely to underestimate the supreme national importance of the adequate teaching of what are called domestic subjects. It is no exaggeration to say that nothing secular, no Acts of Parliament, no contrivances of philanthropists are so calculated to ameliorate the condition of mankind as a system of teaching which will make women competent to manage their homes.

The defects in the teaching of cookery which are revealed in the report are exactly what one would expect in connection with a subject which has been treated contemptuously as being without the pale of polite learning. A lower order of intelligence in the teacher, poor preliminary education, inadequate training both in theory and practice, no adequate appliances in the school, no adequate endowment, time-table difficulties in which cookery has been sacrificed to some more valued subject—these are the complaints. They are illustrated by examples, sufficiently humorous in some cases to have given the report currency in the daily Press.

We may hope for better things; the language used by Mr. Morant in an admirable prefatory memorandum, the whole tone of Miss Lawrence's remarks, the recent additions to the inspectorate, leave no doubt on the subject.

There is, however, one aspect of the teaching of cookery to which I think justice is rarely done, and to which justice is not done in this report, and that is the intellectual side. People do not seem to realise how much can be taught *through* cookery. I do not mean tidiness, accuracy, vigil*ance, and other virtues* of the kind, but good mental habits. A celebrated artist decl he mixed his colours with brains, and i degree is it possible for a good cooker to mix her dishes with brains. It woul cult to find any species of human activi there is more ignorance of the relation and effect, or one where the powers of inc judgment and thought are more consta pended, than the practice of the housel The reform must come through the and I am convinced that it will n unless a very considerable amount tific training is infused into their cu But it must be science of the rig and not of the kind that is still comr tempted. I cannot develop this subje the space at my disposal, but I mention i Miss Lawrence's report contains wor might very fairly be construed into a d ment of the scientifically trained teacl wishes "to emphasise the fact that speal rally the practical rather than the scientil is found, by experience, to be unquestic better suited for teaching children in ou tary schools." I accept the judgme should have been glad to see an admi this result is no argument whatever aga tific training of the right kind. It is s used as one, notwithstanding the succeed in the report, which are but an uncon mand for scientific training. "The re many, even of the most efficient trainin indicate that the methods are too st when the students have to act on their c sibility, they seem wanting in common their work is frequently disappointing.

The intellectual realm that surrou is science; the kitchen is a place wher of science, that is, "organised com should prevail, even if much formal formation be not there, and any sug science is the enemy of practice, comi from a Department of the State, is use official language, "a regrettable

Apart from this, I feel that the repo culated to do good. It is censorious, haps a little unkind to teachers wh to work under conditions for which th to blame, but it gives the promise fostering care on the part of the author ultimately responsible.

A Text-book in General Zoology. By Henr and Henry A. Kelly. x+462 pp. (Ginn.) student who reads this book carefully will balanced and accurate ideas of the main fa structure and physiology, and of the more imp of biological speculation and research. The course, too large to admit of much detailed a volume of this size; but in an elementary zoology breadth of view is of more value tha of facts which can only be studied satisfac laboratory. The book is beautifully and co trated by drawings and reproductions of phot

TURAL HISTORY OF ANIMALS.

TO TEACH THE NEW SUBJECT OF THE AMBRIDGE LOCAL EXAMINATIONS.

By OSWALD H. LATTER, M.A.
Charterhouse, Godalming.

II.

previous article[1] was, for the most part, icerned with the invertebrate animals ned in the examination syllabus. We consider the back-boned.

tes for the junior certificate are ex- have knowledge of:

general structure of a mammal. The characteristics, as regards form and the following mammals: monkeys, bats, igehogs, carnivores, ungulates, whales, narsupials.

anatomical features peculiar to birds, daptation to flight. The principal diver- external form and habits characteristic in groups of birds. The eggs, nesting ng habits, and migration of common ecies.

life-history and habits of a frog.

external features and mode of life of a

andidates are liable to more advanced on the above, and are further to be l with "the main features of the ex- n, habits, and life-history of the common ecies of fishes, amphibians, and rep-

is at once obvious that for several rge portions of the above list cannot be in quite the same direct manner as was for the lower animals. Monkeys and s are not readily accessible, nor are nvenient subjects for observation in is of the usual dimensions. Moreover, ur indigenous mammals, if tolerant of do not exhibit themselves at their best aylight and in the presence of an inquisi- l. For knowledge, then, of the habits mammals recourse must be had to books es, but these should be supplemented by ological gardens and to good museums, to the Natural History Museum at nsington. And here I would add that s should be really for study, not mere rposeless wanderings in courts and gal- undertaken with all the seriousness of m lesson for the sake of gaining a clear on of some one or two animals, or the ns of form exhibited in relation with t is a mistake to attempt more than a at any one visit, or to dream of the whole museum in a few short

sons stated in the former article, it is to begin this section of the work with e type of mammal, and to proceed down the scale, rather than to adopt the natural order indicated by evolutionary ideas. At this early stage it is surely best that the facts which ultimately demand and compel acceptance of the theory of evolution should be firmly grasped: later they will become part of the solid foundation on which the superstructure can safely be erected. Moreover, it is perfectly clear from the terms of the syllabus that the more philosophical aspect of zoology is not, and rightly not, here contemplated. A further argument in favour of this order lies in the undoubted fact that frequent reference to, and comparison with, human organisation, adds greatly, particularly at this early stage, to the interest aroused. But here let me add a word of protest and caution: the terminology of human anatomy is heavily loaded with the technical terms in vogue with students of medicine; a large number of these terms are absolutely unnecessary at this stage, and some are actually misleading, at any rate when applied to animals which do not stand "erect and tall." For example, in dealing with vertebræ, we can well dispense with such terms as "zygapophysis" ("zigopophesis" I recently found it in a paper sent up by a candidate in an examination of similar standard), and substitute the more lucid expression "interlocking piece": and wherever the medical books print "anterior" and "posterior," insert "ventral" and "dorsal" respectively. It is a mere accident that man walks with his ventral surface directed forwards instead of horizontally and downwards—nor does he do so throughout life. It adds much to clearness if we orientate man in the same way as we do his humbler relations, and we then get our terms on all fours right along the line.

External characters will, of course, be the first to occupy attention, and it will be natural to begin with the skin and its covering. A few questions will soon lead pupils to the conclusion that hair is as characteristic a clothing to mammals as are feathers to birds. The modifications of the form of the limbs as a whole, and of their claws, hoofs, or nails, can to some extent be made out from the entire animal in the flesh, but it will be necessary to see skeletons (or good pictures of some of the less accessible) in order to obtain a clear understanding of the relative positions and proportions of the bones concerned, and an appreciation of the modifications that take place in corresponding parts according as the organ is used for walking, flight, grasping, swimming, and so on. The form and disposition of teeth may fairly be included among external features, and for this purpose perhaps teeth, or whole skulls of a cat, horse (or cow), hedgehog, and rabbit will be sufficient for comparison *inter se*, and with those of man. It need scarcely be pointed out that the nature of the food must be simultaneously considered.

Among internal structures the "back-bone" should be assigned the place of honour. There should be no difficulty in securing vertebræ for every pupil to handle and draw, so that the

[1] Appeared in THE SCHOOL WORLD for May, 1907.

general plan of the architecture, and the mutual relations of one vertebra to another, may be understood. Much interest, however, is added if the mechanical arrangements of the several regions of the vertebral column are noticed. I do not know an elementary text-book in which attention is called to the manner in which the neck vertebræ, while permitting much flexibility of the neck as a whole, are so interlocked as to render dislocation very difficult; or, again, how another contrivance for the same purpose is found in the region of the loins, while in the thoracic (dorsal! *apud medicos*) there is no such security, but displacement is prevented by the powerful arched buttresses afforded by the ribs. And yet these facts are within the compass of children, and vividly appeal to their minds. Again, no text-book omits to point out the extensive fusion of vertebræ that is so striking a feature in the "back-bone" of birds; but how many direct attention to the need for rigidity in a back that is nearly horizontal, and is supported near one extremity when the bird is on its feet, but near the opposite extremity during flight? Or how many note the inclination of the coracoids towards one another at their junction with the breast-bone, an arrangement by which the thrusts of the two wings are caused mutually to oppose one another? I cannot do better than mention in this place Mr. Headley's book, "Life and Structure of Birds" (Macmillan). I pass over the details of circulatory and digestive systems with the recommendation that these should not merely be learnt from books, but a specimen should be seen dissected, or, better still, be dissected by the pupil himself.

The paragraph in the syllabus dealing with the main groups of birds, I take to imply not the scientific and systematic classification of birds based upon the entire anatomy, but rather those features of beaks and claws which are so intimately associated with habits. I refer to the shape of the beaks and feet of birds of prey, swimming, wading, perching birds and the like. The knowledge of eggs, nests, songs, and migration can only be profitably or permanently obtained by open-air study.

The difficulty of direct observation of the living animal disappears when we come to the cold-blooded vertebrates. Our British snakes and lizards, our frogs, toads, and newts, and some at least of our fresh-water fishes, thrive satisfactorily in captivity, so that their habits and actions can easily be watched. The dictates of prudence will probably forbid the inclusion of the adder in the vivarium, but the grass-snake is quickly tamed and will tolerate handling without becoming offensive; the smooth-snake (Coronella) is so rare that we may here leave it out of account. Slow-worms, both species of lizard, the frog, the common toad, the natterjack toad, and all three species of newt can be obtained in many parts of the country and reared with comparatively little trouble; while of fishes the minnow and the stickleback will be the most convenient for small aquaria.

In these as in the warm-blooded animals, the distinctive characters of the skin sh noticed, and also the form and dispositic limbs, noting the suppression of the snakes and slow-worms, together with the in which locomotion is accomplished. The breathing and the movements by which i ried out are worth close attention, partic the frog and toad. In some respects the a better animal for observation than the f former is more deliberate and docile, and consent to take food from the hand, so action of the tongue in seizing the prey a eyeballs in the act of swallowing can b On the other hand, the colour of the toad far less susceptible to change than tha frog; hence the latter should be used to s the disposition of the integumentary pig adjusted to suit the surroundings. Thi ment may be performed as follows: take t as alike as possible in the coloration, pl in a separate glass jar containing water t of half an inch or so (large preserving j of clear glass answer the purpose well the water is for the comfort of the ani neath and outside the back and sides o put sheets of dull black paper; the should be treated in the same way wi paper; one side of each jar should be covered by paper, and this clear side turned towards the window, care being t the sun shall not shine upon the vessel occupants would suffer. If this be do early morning, a very marked differen colours of the two frogs will be visib afternoon; that surrounded by black pap ing very dark brown, the other pale yellow. I have often been able to det cided change after the lapse of one h Somewhat similar experiments wit pillars and chrysalids, if for a mome hark back to the previous article, yi interesting and instructive results, anc made to add largely to the value o insects.

The opportunity of watching verte velopment as exemplified in the frog s tainly be embraced. The spawn of fro toads can be procured in the spring country district, and is not seriously i a short journey. Small masses contain a dozen eggs can be kept successfully i vessels of water, such as large saucers dishes; and with the aid of an ordinary many of the developmental changes can from day to day. When the tadpoles is best to transfer them to rather larg containing more water and also a plenti of water-weeds, which serve both to water well supplied with oxygen and t animals themselves. Easter holidays ha fortunate way of interrupting the obser this life-history, so that arrangements made to secure the preservation in form alcohol of average examples of the stag during this period; or, better, the child

cimens and keep them under observa-
ir homes. It will be necessary as the
dvances to provide some means by
tadpoles, or other young frogs, may
water and take to *terra firma*; though
ble, and an interesting variation on the
irse of events, to prolong the tadpole-
for many months; in fact, I have seen
of two years of age—a quaint creature
of a man in an Eton jacket, but not
ological interest.
e convenient and natural to refer once
e whales when the course of teaching
fishes, to work out in detail the points
ance in bodily form and to direct atten-
differences in the plan of the tail and
rnal, skeletal arrangement of the fins.
the Whale Gallery at the South Ken-
luseum will at this point be very

sake of those who may have difficulty
g specimens, I conclude by giving the
Mr. T. Bolton, 25, Balsall Heath
gbaston, Birmingham, from whom
-water and land specimens can be ob-
e Director of the Marine Biological
, The Laboratory, Plymouth, for
; and Mr. R. J. Brogden, 28, Colville
ndon, W., for skeletons and museum

HERS' NOTES ON BRITISH HISTORY, 1688–1906.

C. S. Fearenside, M.A. (Oxon.).

Russia, America, India, 1748–1783.

essential point of the period we now
roach is this: how the deep-rooted
alries of Habsburg and Hohenzollern in
urope, and of Guelf and Bourbon in
-rivalries which did not indeed originate
called "War of Austrian Succession"
but which then, after a lull, revealed
with a violent and bitter intensity—
and expressed themselves, sometimes
nnection with one another and some-
ost in isolation, during the crowded
y that elapsed between the *Peace of*
d the outbreak of the French Revolu-
se international—or rather inter-dynas-
es are directly connected with the great
nal features of the period: namely, the
group of philosopher-kings or enlight-
ts, bent on making their governments
artly, at any rate, with a view to be-
tter armed against their neighbours—
ndation of an English-speaking federal
North America.
od falls naturally into four divisions of
al length, importance, and interest, but
a marked character of its own. We

article in this series appeared in The School World,
00.

begin with one of the least eventful periods in British and European history (1748–54); then follows the Seven Years' War (1756–63), in which the various continental, colonial, and commercial quarrels become almost inextricably intertwined for a few years, and ends in the decided triumph of the short-lived Anglo-Prussian alliance; the seventh decade of the century is mainly occupied with domestic struggles and reforms; and, finally, in the two following decades we have a period of partition and dissolution—in which the kingdom of Poland begins to be devoured by its bigger neighbours, with the connivance of the Western Powers, and the British dominions are partitioned—speaking prophetically, one might almost say "bisected"—by the successful revolt of the older British colonies in North America.

In the period marked by these outstanding events, by far the most outstanding personality is Frederick the Great; and round him may conveniently be grouped not only the neighbouring monarchs with whom he came most into contact—Elizabeth II. and Katharine II. of Russia, Maria Theresa, Archduchess of Austria, and her impetuous son, the Emperor Joseph II. (three of whom are briefly treated in Messrs. Macmillan's "Foreign Statesmen Series")—but also the French Ministers, Madame de Pompadour, Choiseul and Vergennes (best studied in Perkin's "France under Louis XV."). For a very short time Frederick II. was working in close co-operation with the only home-staying British statesman of the day worthy to be accounted his peer—William Pitt the Elder, afterwards Earl of Chatham; and with Chatham may be grouped his direct or indirect fellow-workers, Clive, Lawrence, and Munro in the East, Hawke, Boscawen, and Wolfe in the West. Within the political sphere during our present period there were only two Englishmen whose characters and achievements lift them to the plane of Chatham; and their work, though done outside the British Isles, was closely connected with Chatham's. George Washington, perhaps the most faultless great man in all history, undid Chatham's work in uniting Eastern North America under the British flag, but continued and confirmed his work so far as it concerned the maintenance of the English language on that continent; and Warren Hastings manfully preserved British influence in India, from both native and European assailants, during the War of American Independence. From a twentieth-century standpoint, these three magnitudes—Pitt, Washington, and Hastings—and their imperial achievements completely dwarf the eminent politicians and the parliamentary wrangles which bulk so largely in the gossip and diaries of the day and even in the manuals of our own time. In order to appreciate the difference between the parliamentary and the imperial standpoints one should read side by side Macaulay's brilliant essays on Walpole and the elder Pitt and Seeley's illuminating lectures on "The Expansion of England."

A. British History.

(i) **The Pelham Peace, 1748–54.**

(1) Henry Pelham's Rule, marked at home by little else than the Calendar Reform and Hardwicke's *Marriage Act.*

(2) IN INDIA the Second War in Coromandel proves the making of Clive and the undoing of Dupleix.

(iii) **Seven Years' War (Colonial), 1755–63.**

(1) CAUSES: Anglo-French struggle in America for *hinterlands,* in India for *spheres of influence* (to adopt useful modern terms for very old motives). *Persons:* Duquesne, Braddock. Map-work very important (Great Lakes and Ohio valley).

N.B.—The dramatic events of 1756–7 (Black Hole and Plassey) have but an incidental connection with the Anglo-French struggle in India, which was fought out further south.

(2) BRITISH MINISTERIAL CHANGES, 1754–7: highly illustrative of the constitutional methods and facts of the day. *Persons:* Newcastle, Devonshire, Henry Fox, Pitt.

(3) PITT'S POLICY: pay Frederick to keep France busy in Europe while the admirals and generals he inspired defeat French at sea, in Canada, and in India. Contrast 1758–62 with 1756–7. *Persons:* Wolfe, Hawke.

(4) GEORGE III.'s ACCESSION brings in its train the fall of Pitt, the ruinous desertion of Prussia, and grant of comparatively good terms to France and Spain at the *Peace of Paris,* Feb., 1763.

N.B.—Compare similar influence of party-changes at Utrecht; and note that in each case the fact that the war was not concluded by a single treaty, but by several, illustrates the essential non-unity of the preceding war.

(v) **Restoration of Kingship, 1760–75.**

(1) GEORGE III.'s IDEALS: to exercise in his own person the duties and powers ascribed by law to the King (cf. Blackstone's "Commentaries," 1765), and especially to be the master of his ministers (="servants"), not their tool; *patria,* not *party* (cf. Bolingbroke's "Patriot King").

(2) SEARCH FOR A MINISTER, 1760–70: qualities and defects of Bute, Grenville, Bedford, Rockingham, Chatham, Grafton, and North. For personalities and intrigues read Walpole and Junius; for principles at stake read Burke's "Present Discontents." Distinguish Wilkes questions.

(3) CRITICAL CONDITIONS OF 1768–70: Lorraine, Corsica, Falkland Isles, Cook, Wilkes, Parliamentary Reporting.

(4) COLONIAL CONTROL: assertion of central authority leads to taxation of American Colonies (stages and motives on both sides) and to *Regulating Act* of 1773: highly complicated questions which bear directly on the Imperial Problem of our own day.

(vii) **American Revolution, 1775–83.**

(1) COURSE OF RESISTANCE: discontent, rebellion (1775), revolt (1776). Expulsion of France in Seven Years' War makes safe the *Declaration of Independence.*

(2) CAMPAIGNS: in New England, 1775–6; in Middle States, 1777–9; in South, 1779–83. Chief landmarks: Saratoga, 1777; Yorktown, 1781.

(3) DEFENCE OF INDIA by Warren Hastings, against internal dissensions, inefficient subordinates, the Maráthás, Haidar Ali, and France.

(4) MINISTERIAL CHANGES OF 1782–4: to be connected with the closing stages of the war, which, thanks to Rodney's victory off The Saints and Elliott's defence of Gibraltar, ends more favourably than at one time looked possible. *Peace of Versailles,* 1783.

B. Foreign History.

(ii) **The Kaunitz Transition, 1748–5**

(1) VOLTAIRE: "*L'Europe entière ne vit g plus beaux jours que depuis la paix d'Aix-la-Ch vers l'an* 1755."

(2) Submerged (*a*) jealousy of Austria and Ru upstart Prussia; (*b*) annoyance of Austria with

(iv) **Seven Years' War (Continental), 17**

(1) CAUSES: determination of Austria (Ma and Russia (Elizabeth II.) to suppress their u bour, Prussia, who had drawn most profit fr of Austrian Succession.

(2) DIPLOMATIC REVOLUTION OF 1756: th Kaunitz, aided by the Pompadour. Anglo-Pr *vention of Westminster,* Jan., 1756, brings the French negotiations to a head in the *Treaty o* June, 1756. Why did France become Austria's

(3) FREDERICK'S CAMPAIGNS (vividly portra lyle's "Frederick," the battle-scenes from whic able separately). Attacked on all sides and of his frontierless dominions, he holds at bay o forces, but is often almost reduced to despair. Great Britain in 1761 seems to involve his rui right-about-face on part of Russia.

(4) CHANGES OF PERSONS involve sweeping the character of the war: (*a*) Charles III. of revives Bourbon Family Alliance (Third *Famil* (*b*) George III. of Great Britain (1760) is m trounce Whigs than Bourbons; Katharine I (1762) refuses to continue fighting Prussia. *ante* restored by *Peace of Hubertsburg.*

(vi) **Jesuits and Poland, 1763–74.**

GENERAL: the international period of the S War is followed by a period in which the philo are setting their houses (and sometimes, not di those of their neighbours) in order.

(1) WESTERN POWERS: France absorbs Lorra chases Corsica, and, on accession of Louis financial reform under Turgot; Spain under and Portugal under Pombal, take each a new The Bourbon Powers and Portugal combin the suppression of the Jesuits, 1769–73.

(2) EASTERN POWERS: at instigation of F (eager to give territorial continuity to his domi acquisition of West Prussia), Prussia, Austria, join in first partition of Poland, 1772. Mot gains of the partitioning Powers: was it a merely a crime?

(viii) **Europe during American Revolut**

(1) HABSBURG-WITTELSBACH schemes for in territory—whereby the German-speaking "Austria" should be increased—foiled by Fre

(2) ARMED NEUTRALITY OF THE NORTH, 1780, il almost universal dislike felt for Great Britain. cal issues at stake, and compare the later marit in Napoleon's time.

(3) BOURBON POWERS, by intervening in t War, after the surrender of Burgoyne shows ties of American success, secure the indepen "United States of America," and thus (but a to themselves) exact vengeance on Great Brit losses in Seven Years' War.

(4) AMERICAN POLITICAL IDEAS are carried bac by the French officers who served in America and Paine as connecting links.

ISTORY OF ENGLISH LITERATURE AS A SCHOOL SUBJECT.

By J. H. Fowler, M.A.
Clifton College.

IERE are grounds for suspicion," said a *Times* reviewer the other day, "that the history of literature is being overdone." w of us, I fancy, would be ready to sub- o this critic's opinion. Of books about here seems to be no end. Histories of literature—from the projected Cambridge in fourteen volumes, the work of many hands, downwards through all shapes and the humble (or sometimes pretentious) primer—pour from the Press. There are ies of "Epochs" and "Ages." Even urite classics can hardly be issued without rds" or "appreciations" to tell us what e and what to forgive in them; and it is significant that "The World's Classics," arted out on its voyage bravely without encumbrance, put back into port again an its travels anew, duly ballasted with table introduction. Is it really necessary, ask, that the prevailing fashion should e our school studies? Can we not intro- pupils to English literature, so far as and leave histories of literature and books erature severely alone?

uestion seems to me worth raising. I so far as to say that the history of litera- ot a proper subject for study in schools; nture to say that we are not likely to wisely until we have considered the pos- ections to it, and that we should not allow that it is prescribed for some public ex- ns to absolve us from the duty of con- its value or worthlessness on general prin-

is too often practised, the study of the of literature means, in great part, the ng to memory of mere lists—names of and of books that to nine-tenths of our e never likely to be anything more than The more conscientious pupil reproduces less but trivial details of the biographical with startling fidelity; the less conscien- es them confusedly and inaccurately; but n no more to the one pupil than the other. s to the twinge of remorse that visited having written in the introduction of an rom De Quincey that this eminent author ome years at 42, Lothian Street, Edin- vhen this highly unimportant fact was p to me in an examination paper—bread n the waters and found, not to my satis- after many days. The learning of literary ts is even worse than the learning of In too many of the histories used in he judgments are themselves second-hand ts, superficial generalisations and tradi- rdicts, jejune, uninspired, and uninspir- t even when the history is itself a good en it is the work of a first-rate critic like Prof. Saintsbury or Mr. Stopford Brooke, the epithets, learnt and reproduced with a fatal facility, convey no clear impression to the learner's mind. When they do have an effect, as occasionally happens with clever pupils, the gain is very doubtful. Judgments of approbation, perhaps, do little harm. Much less pleasing is the thought of the youthful censors airily repeating the text-book's strictures on authors of whom they have not read a line—"nurslings of improved pedagogy," Coleridge would have called them, "taught to suspect all but their own and their lecturer's wisdom." Such a course of training is not likely to produce genuine students and lovers of literature. We may expect instead—what perhaps we have even now got—a generation who are ready with glib superficial verdicts on books, who skim reviews and "forewords" and "appreciations," but have never learnt to grapple with a serious piece of reading.

It is just to remember what may be urged on the other side, and what we may suppose to have been in the minds of those who framed examinations upon literary history. One great object of a literary training at school should be to put our pupils in the right way of using a library for the rest of their lives. They ought, therefore, to be familiar with all the great names in our national literature—not merely the names of the great authors, but the names of the great books. Each of these names ought to suggest to them treasures which they may possess and enjoy in after-years, when they are old enough to appreciate them or have time to go carefully over the ground of which now they can only take a bird's-eye view. The proverb *Securus iudicat orbis terrarum* may remind us of a second reason. There are certain literary judgments which have been given by the world's voice beyond recall. It is good that we should know these early. They put us in possession of a standard, and they are invaluable in guiding us to the best books and in teaching us to be indifferent to the advertisements of the hour. Thirdly, it may even be said that it is vain to try to teach literature without teaching literary history. We ought not to look at a writer and his book in isolation; we ought to put them in their right relation to other books and other writers. We cannot understand a book unless we understand the writer's environment, and know something of the ideas that were in the air when the book was written, the general movement of the times, the particular history of the author, the books and the experiences that went to his making.

Of all these arguments I gladly acknowledge the weight. The problem seems to be: how to secure the advantages claimed in such arguments for the study of literary history without running the risk of the very serious difficulties and drawbacks which I enumerated at the outset. I have thought it best to devote a large part of my space to setting forth the conditions of the problem. I believe that any teacher who fully realises those conditions, who has made up his mind clearly

about what is to be aimed at and what is to be avoided, will not be likely to go far wrong in his practice. But I will end my contribution to this unsettled question by stating briefly the conclusions at which, for myself, I have arrived.

(1) LOWER FORMS.—The history of literature is not a good subject for the lower forms of secondary schools. The limited number of hours at the teacher's disposal for English literature should be given to the study of particular books rather than of particular periods. Literary history will at this stage only come in incidentally in the oral teaching of the book; the teacher will certainly give a biographical sketch of the author, will try to awaken interest in him as a man, and make his surroundings as real and vivid to the class as possible.

(2) MIDDLE FORMS.—With middle and higher forms oral teaching of literary history may gradually be introduced, not as a thing by itself, but preferably as an adjunct to the text-book of literature which is being studied, or possibly as an adjunct to a period of general history. But one may lay down the rule that at this stage the teacher should rather aim at using literature to illustrate history than at using history to illustrate literature.

(3) LOCAL HISTORY.—The principle of beginning near home, which has been so much applied of late to history and geography, should not be forgotten in connection with the history of literature. I asked in vain some time ago of a group of school children standing in the main street of Nether Stowey if they could tell me where Coleridge once lived. His name was wholly strange to them, though a tablet marked the house a few paces away. Such ignorance is less common now than it was twenty years ago, and one hopes that it will soon be impossible. That De Quincey lived at 42, Lothian Street, should be of some significance in Edinburgh, though of none in Bristol.

(4) HIGHEST FORMS.—In the highest forms the study of a period may with advantage be substituted sometimes for the study of a single author. But a period is best studied, not in the pages of a literary history, but as far as possible at first hand in the writings of the period. Books of extracts are useful for this purpose, but a book should be chosen in which the extracts are of reasonable length, not mere "snippets" too short to give a real idea of an author's style and too short to awaken the reader's interest. Hales's "Longer English Poems" may well be used in this way, and it may be remarked incidentally that the little biographies included in the notes to that book serve as an excellent model, in what they give and in what they omit, for the teacher's practice. Its division into four chronological periods, which we may call the ages of Shakespeare, Milton, Gray, and Wordsworth respectively, adapts the First Series of Palgrave's "Golden Treasury" excellently to the same purpose. The objection to "snippets" does not apply to lyrical poems which, however short, are complete wholes.

(5) THE TEXT-BOOK.—A small text-b as Mr. Stopford Brooke's Primer, may in the hands of an advanced class, bu use will be for purposes of reference. T will still rely mainly on oral instructi by the help of extracts and by what he r out of his own reading to make the l period which he is handling a reality to Jusserand's "Literary History of th People" should be invaluable to him, n for what it actually contains, but in sug him a way of looking at literature that c fail to win the interest and sympathy of responsive among his pupils. Unfortun history stops, at present, with the E age, but we need not let the influence ample stop there; and for nearer times rial is fuller and more accessible.

(6) HELPS FOR TEACHER AND PUPIL.— the study of literary history, the "En of Letters" Series, Ward's "Englis Craik's "English Prose Selections," a bers' "Cyclopædia of English Literatur be in the school library, and one of the l trated histories of literature. Mr. Gwynn's "Masters of Literature" wou with enjoyment and profit at a comparat stage by a boy or girl of literary tast Hales's "Handbooks" and Prof. Sa histories, as well as the "Periods of Literature" under his general edito rather for the teacher than the pupil. the teacher, I am inclined to believe, more of direct help and inspiration b himself in the great literary biographies Johnson's "Lives of the Poets," Lock velyan, Thackeray's "Lectures on th Humourists"—than he is likely to ge most conscientious perusal of the most tious products of modern literary resear

THE NEW THUCYDIDES

THIS book is divided into two par dides Historicus and Thucydides which differ widely in their c and many will think in value.

In the former part, an analysis is m author's methods, which, if it be true, the root of all ancient history. We ha brought up under the impression that w dotus wrote chronicles, Thucydides wa scientific historian: scientific both in his of evidence and his insight into causes. he says that the Peloponnesian War v the great wars of history, whereas by a spective it was not; but his own history it seem to be so, so that he is given c for more insight perhaps than he dese no one hitherto has been found to tal Cornford's line of attack. It is briefly Thucydides does not understand what a he uses *αἰτία* and *πρόφασις* indiscrimi

1 "Thucydides Mythistoricus." By F. M. Cornford. (A net.

ason, and applies the former specially
nions of the men who deliver speeches,
hose motives which popular opinion
reasons. Mr. Cornford holds that the
the war were economic; the pressure of
ian mercantile classes, who saw the
the Peiraeus, as the universal mart of
threatened by rivals, and who conse-
ished the rest of the citizens into a war
st. He certainly makes some good
his direction, by asking why the Athen-
ed to possess Nisaea and Pegae; and
at there is a truth in this which has
erally overlooked. The attitude of
oo, is explained with much skill and
.

k, however, that Mr. Cornford is too
on this economic movement as a blind
ndent of humanity, something like the
vitation. These merchants did not act
usly: they had their
which when put into
uld be *αἰτίαι* in Mr.
s sense, and might
be both opinions and
No doubt Thucydides
the word loosely, but
if he were so blind
s as Mr. Cornford
Certainly his argument
rly history of Greece
full appreciation of
causes; and his his-
e war was concerned
business motives, set
αἰτίαι, and with secon-
es, such as the affair
nnus. That he rated
causes below their
may also be true.
we come to the second
e book, we have to ex-
gh degree of admira-
re Mr. Cornford draws a parallel be-
form of this history and the Aeschylean
d shows how the Aeschylean demons
emesis, Ate, Hybris, and the rest are
in the persons of some of the actors.
his idea to explain the principle of se-
ich guided the author, in choice of the
which (say) Cleon and Alcibiades are
n the stage, and the acts which they are
lo. Most ingeniously he shows that on
sition Thucydides may be acquited of all
of malice against Cleon. No doubt all
ith any literary sense must have felt
tory was essentially tragic in the Greek
is that of Herodotus, but his story is so
with humour and geniality that this is
rked. But no one has ever worked out
ple with so great detail and fulness as
ford.

be seen that the book offers abundant
thought. The historical criticism must
eighed and sifted by scholars before its
value can be settled: the result will be either to increase our admiration for Thucydides or to shake our trust in all ancient historians. We incline to think that Thucydides will come well out of the ordeal; but we would not be dogmatic so soon. As to the poetical part, we feel sure that the book will prove deeply interesting to all lovers of literature. In any case, it is one of the most important books that have been written on Thucydides.

NEW LABORATORIES AT THE WHITGIFT GRAMMAR SCHOOL, CROYDON.

New science laboratories, which have many points of interest so far as the fittings are concerned, have recently been opened at the Whitgift Grammar School, Croydon. Great efforts have been made to minimise waste of time and labour in collecting the necessary apparatus for a lecture or for laboratory work, in storing it again after use, and in ensuring that students have at hand all the appliances they are likely to require. Probably no school laboratory has yet been built which provides all the storage accommodation that a science master would like, yet the amount of accommodation afforded by the same amount of wall space available for cupboards and shelves can be increased or correspondingly diminished enormously by attention to or neglect of the details of construction of the cupboards and shelves themselves. Similarly, attention to details can materially reduce the labour of keeping the laboratories clean and orderly; while absolute uniformity of fittings for the working benches and symmetry of arrangement render it easy for a teacher to see at a glance that all apparatus is stored as it should be.

Fig. 1.—General view of Chemical Laboratory from master's demonstration table.

The illustrations show the general arrangement of the rooms and their more important fittings. The chemical laboratory (Fig. 1) is fitted for twenty-eight boys working in pairs. Each pair of boys has eight feet of bench space, one sink, and water-supply tap with side connection for filter pumps, four gas nozzles, two extra water nozzles for attachment to condensers, down-draught flue, two plugs for the supply of electric current from a motor generator and storage battery respectively, balance case,

teak lead-lined waste box, and a single raised reagent shelf.

The reagent shelf is of plate glass, and is raised some

FIG. 2.—General view of Physical Laboratory.

6 in. from the bench top. In the recess beneath are arranged all gas and water nozzles, electricity terminals, and so on. These in turn are fixed on a fillet of teak wood, and set well back, so that glass apparatus is not likely to be pushed back upon them and so broken. Moreover, the working bench, being thus absolutely unencumbered, is easily cleaned. Beneath each working bench are six drawers and lockers, one locker from each set of six being assigned to a pair of boys from the six forms taking practical chemistry.

Fittings of a more general nature comprise: two large combustion chambers, one for gas furnaces and one containing a small "Moissan" electric furnace for the reduction of ores. To secure a good light and to render the work of cleaning easier, these and all fume cupboards and backs of sinks are lined with "Emdica," a thin sheet metal with an enamelled surface.

In the roof a large rain-water tank is fixed, from which water is delivered at taps placed along the walls of the laboratory; below each tap is an iron ring on a swivel arm, in which the students place a funnel and filter paper. The water so obtained is pure enough for many purposes, and greatly reduces the demands upon the still and condenser.

All sinks, other than those on the students' benches, are fitted with Fletcher's Instantaneous Water Heaters, so that apparatus can be quickly cleaned at the end of a lesson.

All store cupboards throughout the laboratories have glazed doors, so that apparatus is easily visible, and the chances of its being put away uncleaned or in its wrong place is reduced. All shelves are adjustable, and some of the cupboards have vertical partitions, this arrangement being convenient and economical of space for storing lengthy pieces of glass apparatus.

In the chemical and physical lecture-rooms the space is somewhat limited, but the seats are arranged in three tiers, each 4 ft. from front to back. The desk is continuous and the seats separate, but fixed to the floor. A gangway is left at the back of each row, so that a boy can move from his place without disturbing his neighbours, *and the teacher can also move* about amongst his class.

In the physical laboratory (Fig. 2) the
arranged transversely, with a central gangway.
chemical laboratory, each pair of boys has
feet of bench space. At the
bench adjoining the wall,
water nozzles and elect
terminals are arranged, an
case is fixed on the wall
cupboards below vary in
with double-hinged doors
whole length of the benc
used for storing bulky ap
others there are partitions.

One of the most useful
this room is the dryin
(Fig. 3). This has comp
various sizes for drying dif
of apparatus, such as
electroscopes, &c. All shel
forated to allow circulation
and below the cupboard is
heating stove.

The whole of one end of
fitted with small drawers
loose shallow wooden tra
storage of the innume
articles needed in a phys
tory; each drawer is labelled on the outside,
sets of drawers are reserved for accessories
"electricity," and so on, and thus no time

FIG. 3.—Drying cupboard, with electric stove bene

searching for apparatus. Here, as in the che
all store cupboards are glazed and have adjust
some having also the vertical partitions alluded

nced physical laboratory is fitted similarly in the main laboratory, except that the working knee-holed, so that boys can sit at their work. so a carpenter's bench, and tools for making apparatus.

e-room, balance-room, and science master's r no comment.

ce of electricity for experimental purposes is te. A motor generator with an output of watts is run from the Corporation supply means of a speed regulator attached on the and an adjustable resistance in the field of , any voltage from 30 to 100 volts can be he main switchboard is fixed in the physical From this board the current from the n be diverted to charge a battery of twelve bour storage cells, and a service from these, in one direct from the generator, is run to each rking space, while a lighting plug from the o volts can be used for optical work. Thus receives a supply from three separate sources: rvice, giving voltages varying from 2 to 25 generator service, giving from 30 to 100 volts; ly mains, giving 230 volts.

generator and battery leads run to the switch- e chemical laboratory, where the current can l and measured independently. All terminals he laboratories are protected by "local fuses," danger of injury to apparatus is greatly re- a "short circuit" at one bench does not h the work at the others.

able of carrying current up to 20 amperes plugs in the lecture-rooms for use with the

ing piece of apparatus has been made by enior boys, namely, a model of the installa- mployed. A small motor is run from the erator; this is coupled to a small dynamo, s current direct through measuring instru- the main switchboard. The current can also nto a battery of small capacity accumulators, gain, can be discharged singly or together. pparatus gives an excellent means of demon- a class how current from the supply mains formed and utilised.

AMINATIONS FOR L.C.C. RMEDIATE SCHOLARSHIPS.[1]

THE GENERAL SYSTEM OF EXAMINATION.

ttee is of opinion that for boys approaching examination should be conducted on broader present. It considers that too much en- given to getting up particular subjects of subjects with a view to their repro- mination. For instance, in physics a candi- e special branch, and is practically excluded y of other branches during the year or ears during which he is preparing for the ther instances might be given.

ledge, rather than something which has p," should be the end in view.

e Committee considers that the present system of attempting to equalise the marks in dissimilar subjects, and of adding up totals, is an unsatisfactory method of selecting scholars.

The Committee, while practically adopting the general principle of the present examination, suggests the following alterations:

First, every candidate shall be compelled to reach a certain standard in (1) English; (2) one language, ancient or modern; (3) mathematics or science.

In English, papers would be set containing an essay and questions in language and literature, in history and in geography; no choice of books, periods, or areas should be given, but a wide range of questions set.

Secondly, every candidate should have the opportunity of showing special knowledge in one of the following three divisions of the examination, but should not be limited in the number of subjects in each division: (1) linguistic; (2) mathematical; (3) scientific.

No definite number of scholarships should be assigned to any one of the three divisions, and the successful candidates should be selected upon the examiners' special recommendation of those who show conspicuous promise in any division.

The Committee considers that this examination should be held for the award of scholarships only, and that only those candidates should be allowed to enter who have a reasonable chance of obtaining a scholarship. In the past many junior scholars have been compelled to enter without any chance of doing so.

(2) SPECIAL REMARKS ON THE SCIENCE SYLLABUS.

There are at present *six* different science subjects; few select more than one, no one can select more than two; consequently some boys are kept for two years studying chemistry to the exclusion of physics, or electricity to the exclusion of other science.

Any boy hoping to continue his scientific studies after the examinations should certainly have a broader foundation of knowledge than this, and the Committee considers that no boy should be awarded a scholarship in science who does not show some knowledge of general chemistry and of general physics, including mechanics.

The Committee thinks that more latitude should be allowed in the chemistry syllabus: it sees no reason to restrict the volumetric work to acid and alkali only, nor the metallic compounds to those of sodium, potassium, and iron. It thinks that the general principles of volumetric measurement, and of the compounds of the commoner metals, with some physical and some organic chemistry, should be substituted.

The Committee thinks that an oral examination for candidates taking advanced science subjects would be of the greatest value; this might be combined with the practical examination, and might ultimately replace it. It considers that the production of the students' own notebooks would afford an excellent basis for an oral examination.

The Committee considers that the examination in elementary experimental science should be discontinued. The syllabus for this work was intended to introduce children of eleven and twelve to practical scientific method, and to make this a subject to be "got up" by boys of seventeen is to withdraw from it all value. The subject of elementary experimental science has proved invaluable for teaching, but has never proved a satisfactory one for examination purposes.

The Committee is unanimous in recommending that whatever changes are made in the examination, the

[1] the Committee appointed by the London division of the sociation of Headmasters to consider the general scope of for L.C.C. Intermediate Scholarships, and specially the

elementary experimental science and botany should cease to be obligatory on candidates taking higher scientific subjects.

The Committee, while admitting the great importance of manual training as a subject in the school curriculum, considers that it is not a suitable subject for an examination for the award of scholarships.

Signed by C. M. Stuart (Chairman), H. R. Norris, E. H. Pritchard, S. H. Wells, H. J. Spenser, W. G. Rushbrooke, D. L. Scott, H. B. Ryley.

CAMBRIDGE UNIVERSITY LOCAL EXAMINATIONS.

SET SUBJECTS FOR JULY AND DECEMBER, 1908.

RELIGIOUS KNOWLEDGE :—*Preliminary.*—(*a*) St. Mark; or (for Jewish Students only) II. Kings i.–xvii.; (*b*) Judges i.–xii.

Juniors.—(*a*) Joshua i.–xii., xxii.–xxiv.; Judges i.–xii.; (*b*) St. Mark, or (for Jewish Students only) II. Kings; (*c*) The Acts of the Apostles xiii.–xxviii.

Seniors.—(*a*), (*b*), (*c*), as Juniors; (*d*) Philippians and St. James.

ENGLISH LANGUAGE AND LITERATURE :—*Preliminary.*—(*c*) Scott, "Marmion," Cantos i. and vi. (omitting the Introductions); (*d*) Kingsley, "The Heroes."

Juniors.—(*b*) Shakespeare, "The Merchant of Venice"; (*c*) Scott, "Marmion" (including the Introduction to Canto i., but omitting the Introduction to the other Cantos); (*d*) a paper of questions of a general, not a detailed, character, on Scott, "Quentin Durward," and "Select Poems of Tennyson," v.–xvii. (ed. George and Hadow, Macmillan).

Seniors.—(*b*) Shakespeare, "The Merchant of Venice"; (*c*) Milton, "Comus," "Lycidas," "Sonnets," i., ii., viii.–xxiii.; (*d*) a paper of questions of a general, not a detailed, character, on Shakespeare, "Coriolanus," the Essays of Bacon, Steele, Lamb, and Macaulay in Peacock's "Selected English Essays" (Frowde), "Selections from Wordsworth" (Cambridge University Press).

HISTORY, GEOGRAPHY, &c. :—*Preliminary.*—History of England. The paper will consist of three Sections on the periods (*a*) 1066 to 1485, (*b*) 1485 to 1603, (*c*) 1603 to 1714 respectively. Candidates may, if they wish, select questions from all three of the Sections, or may confine themselves to two or one of them.

Geography. Great Britain; and general Geography.

Juniors.—(*a*) History of England. The paper will consist of three Sections on the periods (i) 1066 to 1509, (ii) 1509 to 1688, (iii) 1688 to 1832 respectively. Candidates may, if they wish, select questions from all three of the Sections, or may confine themselves to two or one of them. (*b*) Outlines of the History of the British Empire from A.D. 1492 to A.D. 1784. (*c*) Outlines of Roman History from B.C. 44 to A.D. 37.

(*d*) Geography. The United Kingdom of Great Britain and Ireland, and Europe.

Seniors.—(*a*) History of England. The paper will consist of three Sections on the periods (i) 55 B.C. to 1509 A.D., (ii) 1509 to 1714, (iii) 1714 to 1867 respectively. Candidates may, if they wish, select questions from all three of the Sections, or may confine themselves to two or one of them. (*b*) History of the British Empire, as Juniors. (*c*) Roman History, as Juniors.

(*d*) Geography. The paper will consist of four Sections on (*i*) Great Britain and Ireland, (ii) Asia, (iii) Africa, (*iv*) *N. America and the West* Indies, respectively. Candidates may select questions from all four of tl or may confine themselves to any three or any t

LATIN :—*Preliminary.*—G. M. Edwards, Latina" from Erasmus, omitting xii. (Caml versity Press); or Cornelius Nepos, "Lives o Themistocles, Aristides, Pausanias, Cimon."

Juniors.—(*a*) Caesar, "de Bello Gallico,' Caesar, "de Bello Gallico," III.; (*c*) Virgil, X., 1–501; (*d*) Virgil, "Aeneid," X., 439–908.

Any two of these four to be taken.

Seniors.—Livy, XXI., 16–56; or Cicero, linam," I.–IV. Virgil, "Aeneid," X.; o "Odes," III.

GREEK :—*Preliminary.*—Sidgwick, "First Gi ing Book," 3rd edition, Exercises 1–50 (Rivingt

Juniors.—(*a*) Xenophon, "Anabasis," I., Xenophon, "Anabasis," I., 6–10; (*c*) "Hecuba," 1–725 (omitting 59–215, 444–483, (*d*) Euripides, "Hecuba," 726–1295 (omitting

Any two of these four to be taken.

Seniors.—Plato, "Apology"; or Thucyd 1–50. Homer, "Iliad," VI., VII., 1–312; or "Hecuba."

FRENCH :—*Juniors.*—Enault, "Le Chien du

Seniors.—Molière, "Le Misanthrope"; Chatrian, "L'Histoire d'un Conscrit."

GERMAN :—*Juniors.*—"Twenty Stories from omitting "Aschenputtel" and "Der golde (Cambridge University Press).

Seniors.—Goethe, "Hermann und Dorothea "Das Bild des Kaisers."

HISTORY AND CURRENT EV

THE Colonial Conference should not fail mention in this column. It is, to use the eloc of Sir Wilfrid Laurier in the London Guildhal The student may search and search in vain i of history so far back as the records of histor him; he will not find a precedent; he will parallel." That, perhaps, is partly the reasc cannot possibly exclude it. Here, at last, is which is "new under the sun." And yet, wh sider how little of the history of mankind at lar to the most learned of Europeans, we woul too sure. A universal negative is the rashest of What do we know, *e.g.*, of ancient Egypt, tl of constantly surprising new discoveries? of Cl we are coming to realise the truth of old-worl tales and to believe in an ancient civilisatio stood still for Europe to overtake? or of Indi empires before the arrival of Europeans? *may* be correct, nay, probably is. But let us not to commit ourselves.

IN certain respects, our Colonial Conference parallels in history. It has been discussing, a things, its own constitution and the limitat powers. The Premiers realise fully that, in t sense, they have no power. They come toget for consultation. They cannot bind their c Defence of the Empire may be urgent, both m naval. But they can only compare opinions, with another, and promise to do their best to the resolutions of the Conference. Therein the all federations of independent States. What Hellas had in uniting against Persia, Mac Rome! What a curious study in constitutional

by the United Netherlands until they were
to a unitary State by Napoleon and the Vienna
! With what passionate struggles for "State
did the United States of America attain what
y now possess during the century that followed
dom from Great Britain! Was it sentiment, or
interests, that made for unity in these instances?

RATION" may be defined as the decision of an
oluntarily submitted to by the parties to a dis-
will thus be distinguished from "jurisdiction,"
the decision of a judge in cases provided for by
of a sovereign and not requiring the willing
the parties to the dispute. The history of juris-
hows in many cases how the first has been the
the second, and has constantly tended to grow
more authoritative form. So in these days, while
"arbitration" has been retained, we have
in New Zealand, and more recently in Canada,
establishing "compulsory arbitration," *i.e.*, juris-
ver disputes between employers and employees.
imprisonment are the sanctions for these laws.
apparently differ as to the possibility of enforcing
ctions, but, as students of contemporary history,
the growth of government, the diminution of
Strikes and lock-outs are henceforward to be
least if the State has laid down the terms which
y should accept.

rbitration" has grown into "jurisdiction" in the
etween the individual and the State, so there have,
nes since the break-up of the Roman Empire,
mpts at introducing into the relations of Euro-
es "arbitration" as a substitute for wars. The
onference is the outward and visible sign of the
velopments of these ideas, and the "National
n and Peace Congress" of America, lately
New York, has been expressing its hopes that
erence will get more power in arbitration, *i.e.*,
ge arbitration into jurisdiction, or at least advance
irection. We do not know if this "Congress"
to a "Peace Society" which existed in America
ago. If so, the conflict of ideas within the
as been continuous. Then, they were abusing one
ecause they differed in their ultimate ideal. Now
as hardly been a session of the Congress at which
less of a row has not been developed." Yet they
as they asked then: Why should not States
arbitration as individuals submit to courts of
Surely their own meetings might supply the

ITEMS OF INTEREST.

GENERAL.

go to press the new regulations for secondary
which are expected daily from the Board of
, are not available. Though we must defer any
account of them until the actual regulations are
, Mr. McKenna's recent speech in the House of
leads us to expect material changes in the
to be adopted in distributing grants to secondary
One of the regulations promised by the Presi-
he Board states that a secondary school "may
or without fees, but any scale of fees must be
by the Board." Dealing with the increased sum
now available for secondary education, Mr.
said it is proposed to divide the grants for the ensuing year into two categories. The schools which refuse to remain under any regulations other than the old regulations it is proposed to confine to the old grants, and nothing more. As to the second category, it is proposed that the additional grants shall be given only to the schools which conform to the new conditions.

To obtain grants under the new conditions, there must be, first, a majority of representative managers, either appointed by local representative authorities, such as county or borough councils, district or parish councils, or boards of guardians, or elected by popular local constituencies, such as parish meetings. The second condition is that the instrument under which the school is governed must not require members of the teaching staff to belong or not to belong to any particular denomination; it must not require a majority of the governing body to belong or not to belong to any religious denomination; and it must not provide for the appointment of a majority of the governing body by any person or persons or any body the majority of whom are required to belong or not to belong to any particular denomination. There must also be an adequate number of free places. These must not be confused with scholarships. They are for public elementary school children who are not to be asked to compete with children outside, but who will only be asked to pass a qualifying examination. The general rule is to be that any school receiving the additional grant shall offer at least 25 per cent. of its places for public elementary school children, who shall enter free. The schools may have as many more free places as they like, and where the schools are provided by the local education authority it is trusted they will all be free. There are cases, however, where 25 per cent. of the places will not be used in any case in this way. It is proposed that, where a resolution is passed by the local education authority supporting the application for recognition by a school which does not in all respects comply with the requirements about public management and conscience clause, the Board may, if it sees fit, waive the requirements.

FOLLOWING the annual meeting of the National Education Association, a conference on secondary education was held, presided over by Mr. A. H. D. Acland. The chairman, in opening the proceedings, said that progress towards educational efficiency is almost as slow as ever, and that the country with regard to a matter of this kind is almost as lethargic as ever. Nothing but a new force of national zeal, and still more national co-operation, will relieve the prevailing indifference. One topic of rather personal interest, he said, is the grant of moneys to secondary schools. We are still waiting fulfilment of the promise which was made fifteen months ago, in a letter written by Mr. Birrell, that we should have increased Exchequer grants to secondary schools. Nothing less than an average grant of something like £7 a head from the Exchequer to the secondary day schools of this country will be of any effective avail if the teachers are to be properly paid, and the schools are to be properly equipped and rendered fully serviceable for the children who are received within their walls. There are no schools, Mr. Acland continued, more worthy of public attention than those day schools for the local supply of education above the elementary standard. These will always be largely recruited from the elementary schools, and they ought to be made as little burdensome to the ratepayers, and, above all, to the parents, as possible. If the national policy is to starve and neglect these schools, of which we have some, but not nearly enough, we shall be doing what is

often done in this country—"Spoiling the ship for a half-pennyworth of tar." There are no schools which our neighbours in foreign countries foster more, and rely on more for the development of national intelligence, and there are no schools more deserving of public attention, assistance, and help than these schools.

AT a dinner given on May 9th by the City of London Schools Committee of the Corporation "to meet the President of the Board of Education," the Chancellor of the Exchequer, who is an old boy of the City of London School, paid a graceful tribute to his old school. In proposing the toast "The City of London Schools," Mr. Asquith is reported by the *Times* to have said: "It is always a great pleasure to me to find myself once more in the company of those who are interested in the fortunes and prosperity of the City of London Schools. I cannot help remembering that I had the great privilege of having been educated within the walls of the City of London School. When I joined it in 1864 the school was situated between Milk Street and Honey Lane, in the very heart of the City, and it had many disadvantages compared with the more ancient and better endowed foundations of the country. It did not possess so much as a playground, and, though we enjoyed the results of the beneficence of John Carpenter of four or five centuries before, yet our endowments were meagre, and our educational traditions as a school only dated from the earliest years of the reign of Queen Victoria. When a school carried on under those conditions is compared with the great historic foundations of the country—schools like Eton and Winchester—it may well be thought that it had a poor chance of holding its own in the struggle for existence. Yet, somehow, the school did very well. The curriculum was a wide one. When I was first at the school the late Dr. Mortimer was headmaster, and no school ever owed a greater debt to any man than the City of London School owed to Dr. Mortimer. But about a year after I joined the school Dr. Abbott, a brilliant scholar, became the headmaster, and to Dr. Abbott I owe more than to any man living." Schoolmasters do not get so much praise for the efforts they make on behalf of their pupils that they will be other than grateful to a distinguished man for a generous tribute of this kind.

THE annual conference of the Parents' National Educational Union was held on May 13th and 14th. At the first meeting Mrs. E. L. Franklin delivered an address on the objects of the Union, the chief of which is to assist parents of all classes to understand the best principles and methods of education in all its aspects, and especially in those which concern the formation of habits and character. In the evening the headmaster of Eton gave an address on "The Power of the Home," showing how parents could co-operate with teachers in things intellectual. On the second day the headmaster of Clifton College read a paper on "The Product from the Preparatory School and the Direction of Possible Co-operation from the Side of the Home." He spoke of the necessity for a well-thought-out curriculum in the preparatory school, emphasising strongly the importance of teaching boys how to work and of developing their power of concentration. Another paper was by Mrs. Burton Brown, co-principal of Priors' Field School, Godalming, the subject being "Classic and Mediæval Art as a Part of Education." Papers were also read on "The Scope of the Parents' Union in Secondary Education," by Lieut.-Colonel G. R. Ward; and by the Rev. H. T. Bowlby, assistant-master at Eton, on "*Continuity of Religious* Education between Home and School."

BETWEEN sixty and seventy members of the Art Guild met on May 11th at St. Saviour's and St Girls' Grammar School, London, Miss Varley, K High School, being in the chair, to discuss the which will be considered at the forthcoming Inte Congress on the Teaching of Art, to be held in in 1908. Among the subjects were: drawing in tion with modelling and manual work; the tra art teachers; and methods of disseminating idea and developing public taste. Miss Welch, Clapha School, gave an account of the introduction of r into the lower forms of a girls' school, of its cc with, or substitution for, other handwork subjects its value as hand training. Mr. Bowman Porte ford Grammar School, discussed the same subject point of view of its efficacy in a boys' gramma A debate on the usefulness and practical diffic manual training in schools ensued. Miss Giles, and Stamford Hill School of Art, spoke on the tr art teachers. The same subject was dealt with in by Mr. George Brown, Glasgow. Miss von Wyss, Day Training College, urged the necessity for te art to undergo a course of training in education generally, as well as in technical training. Mi Sheffield High School, emphasised the necessity recognition by the teacher of the individuality child. Mr. Hine, Harrow School, Miss Floo St. Paul's Girls' School, and Miss von Berg, Bl High School, spoke on methods of disseminating art and of developing public taste.

THE fourth annual conference of the Girls' Sch Union was held on May 11th at the Froebel Ed Institute, West Kensington. At the general meetir preceded the conference, Mr. W. H. Hadow was president. It was also decided to hold a series ings throughout the country in furtherance of t of the Union, which is to advance music in s schools for girls throughout the British Empire provide teachers with the stimulus of social ir among professionals. Mr. J. A. Fuller-Maitland, sided, read a paper on "Enthusiasm in Teachin W. H. Hadow, in his presidential address, dealt subject of the training of the listener, and warned against the dangers of teaching over the heads pupils and condescending to them. Dr. Fred Shinn spoke of the advantages that came from t ing of the history of music in schools.

THE Jamestown celebrations, to which refere made in our March number in the notes on His Current Events, have taken place, and the Ambassador made a speech on the occasion. D is the most fitting Englishman—or is he not Scot?—to represent his country in such circu Historian of the Holy Roman Empire, lawyer— he is one of the very few who technically worthily Oxford degree D.C.L.—author of the standard d of the United States as they are, or at least we years ago—his speech was, neither more nor less, himself. He spoke of the England of 1607, its its politics, of the growth of the colonies, of the misunderstandings which for fifty years prevailed the mother country and the daughter nation, an community of feeling which has displaced those and which he so appropriately represents. As a of "American" history, the speech is suitable fo to our classes.

alterations and additions have been completed School for Girls, Greenwich. The question of accommodation of the school had been under for some time, when matters were brought y the action of the Board of Education in ng the numbers of pupils per class-room in schools, and by the proposal of the London cil, early in 1906, to make additional use of r its scholarship holders. This necessitated ng immediately put in hand, both to accom- ew scholars and to remedy the already over- of the class-rooms. The total accommoda- school, allowing the amount of floor space lar sanctioned by the Board of Education, is the new rooms take 138 and the old rooms o new science rooms accommodate twenty- nty-one scholars respectively, and the dining hty-eight. The new rooms are furnished in lern style, and the equipment for the teaching l gymnastics is thoroughly efficient.

nors of Harrow School have informed the ucation Committee that the Board of Educa- fined to continue recognition of the Lower m Lyon at Harrow, unless assurances are additional accommodation will be provided. s are of opinion that, owing to the growth in the more distant parts of the district, it irable to enlarge this old school on its present event of assurances from the County Council provide a suitable school elsewhere, the willing to carry on the Lower School of til Midsummer, 1908, and also—if the neces- for an alteration of their statutes can be ontribute £400 a year to the new school, on ding that this contribution shall be appro- e benefit of the inhabitants of the old parish Failing such an arrangement, it is feared it ary to reduce at once, and very largely, the oys in the school. A recommendation has the Education Committee that, without pre- amount to be paid by the Governors of ol towards a reconstituted Lower School of egotiations should be entered into with them District Council of Harrow and Wealdstone n of a secondary school for boys at Harrow. been taken to the proposal by representatives w district. The recommendation has been slightly altered form to meet the views of the t.

itional Bureau of Peace, Berne, has circu- of the resolutions passed at the fifteenth ce Congress held at Milan last September. international education, the resolutions state ng the spirit that animates a nation depends he education of the so-called upper classes, on the primary instruction of the whole aving in view the close connection between f the love of peace and instruction in morality, strongly urges on national Governments, and Ministers of Public Instruction, the introduc- imary and secondary schools of moral and on based on the common principles of duty, uman solidarity. The Congress is of opinion truction would result in an effective pacific much from the national as from the inter- of view.

THE French holiday courses, which have been held with great success during the past eight years by the sea at Villerville, near Trouville, under the patronage of the Alliance Française and with the approval of the Rector of the University of Caen, are to be repeated next August. Inquiries may be addressed to the director of the courses, Prof. L. Bascan, École Supérieure, Rambouillet (S.-et-O.).

MISS WALTER is arranging a holiday in Switzerland this year which should prove useful to women engaged in professional work. The holiday is organised for either a fortnight or three weeks from August 6th. The time will be spent at Grindelwald and Reuti. Grindelwald is between 3,000 ft. and 4,000 ft. above sea-level, and is one of the famous spots of the Bernese Oberland. Reuti, on the Hasliberg (3,500 ft.), is near the top of the Brunig Pass, and is noted for its wonderful view of the Lake Brienz and its beautiful sunsets. Second-class carriages will be reserved from London (third class on the mountain railway above Interlaken), and comfortable hotel accommodation will be provided. The tickets are available for twenty-five days, so that those who wish to make a break at Paris on the return journey can do so. The cost will be about ten guineas for the fortnight or thirteen guineas for three weeks. Applications should be made as early as possible, as the party is limited in number and the hotels fill early. Further particulars can be obtained from Miss L. Edna Walter, 38, Woodberry Grove, Finsbury Park, London, N.

THE issue of *School Science and Mathematics* for last month contains several items of interest to teachers. Mr. J. M. Jameson, in appealing for "more interesting and practical mechanics for the high school," suggests that far less time should be spent by the students in making formal measurements of length, specific gravity, and so on, and that more attention should be given to experimental mechanics, including the dynamics of rotating bodies, the apparatus being thoroughly rough and commercial in character. Subsequent numbers of the periodical will contain details of simple trusses, cranes, and arches adopted by the writer. An interesting article, on "Some of the Symbols of Elementary Mathematics," directs attention to the diversity of meaning attached to various symbols. Thus, in England, a dot before the middle of a figure represents a decimal point, but if near to the bottom of a figure it represents multiplication; in America the reverse interpretation is general. The writer advises the universal use of the comma as a decimal point—the method already adopted in Germany, France, and Italy. The articles on "High Explosives" and on "Some Recent Advances in Physical Science" will be useful to the teacher who has insufficient time and opportunity to obtain the information from original sources. An interesting feature of this publication is the "Problem Department," to which instructive problems in mathematics, geometry, and applied mathematics are submitted by readers; solutions to these are invited, and subsequently printed under the same heading.

MR. A. H. DYKE ACLAND has been elected chairman of the Consultative Committee of the Board of Education in place of Sir William Hart Dyke, who has resigned. Mr. Acland was vice-president of the Committee of Council on Education in the Liberal Ministry of 1892–5.

MR. CHARLES LOWRY, headmaster of Sedbergh School, and formerly assistant-master at Eton, has been appointed by the Skinners' Company to be headmaster of Tonbridge School in succession to the Rev. Dr. Tancock.

THE annual conference of the Association of Headmistresses will be held on June 7th and 8th at the Grey Coat Hospital, Westminster, S.W.

IN consequence of the changes in the assessment of income tax, it will be impossible for the existing staff of surveyors to cope with the work, which must be much increased by differentiated rates, closer scrutiny of income, and a super-tax. The number of vacancies for the coming examination to be held in July is thirty—much larger than usual. The limits of age are nineteen and twenty-two. Candidates who were within the prescribed limits on January 1st, 1907, and those who will be on January 1st, 1908, will on this occasion be eligible to compete. Forms of application will shortly be ready for issue, and will be obtainable from the secretary, Civil Service Commission, Burlington Gardens, London, to whom they must be returned by June 27th. The subjects of examination are: English composition, arithmetic, accountancy, political economy, law of evidence; and three chosen from Latin, French, German, geography and history, and geometry and algebra. The salary scale is as follows: assistant surveyors, £100 a year, rising by £10 annually to £180; surveyors of the fourth, third, second, and first class, £200, by £12 to £380; £430, by £15 to £550; £600; £620, by £20 to £700.

SCOTTISH.

THE Education Department has issued a circular to the Secondary Education Committees calling on them to submit their schemes for the distribution of the moneys allocated to them not later than June 1st. Their list of nominations of junior students should, as far as possible, be completed before the end of the summer session in order that candidates may begin their studies immediately after the long vacation. The general principles that should guide committees in framing their scheme of bursaries are also laid down. Unless in exceptional circumstances, no financial assistance should be given to pupils under fourteen, the compulsory age limit. The bursaries should be distributed equitably over the different schools providing qualified applicants, at least one bursary going to every such school. Competition for a bursary, if unavoidable owing to the number of applicants, should be restricted to competition between pupils of the same school. In determining the amount of the bursary, regard should be had to the necessary expenses of applicants, *e.g.*, in travelling or in boarding at the centre of instruction. While a certain number of bursaries must be reserved for deserving junior students, these should form part of the scheme for secondary pupils generally. The conditions outlined above are in line with the best educational opinion, and the Department is to be congratulated on the admirable lead it has given the whole country in regard to the conditions that should govern the allocation of bursaries.

THE conference of Scottish School Boards on the Education Bill afforded an excellent object-lesson on the inability of existing school boards to take a broad view of their duties and responsibilities. The Bill seeks to increase in many directions the powers invested in the boards. At this conference it was conclusively proved that they did not want extended powers. They have been so long obsessed by the parochial idea that they can think of no wider horizon. "Whatever is, is right" sums up their attitude to every offer of advance and reform in educational administration. The Lord Advocate, Mr. Thomas Shaw, M.P., has sung pæans in praise of the parish boards, and now they turn round and rend him and his Bill. *In all this there is a certain* measure of poetic justice. Mr. Shaw has championed the small area in the most obvious facts and against the opinio all having a direct knowledge of educati Small boards look at everything from "s siller" point of view, and as extended powers expenditure, they are determined to have no All this, while strongly confirming the genera the inefficiency of existing school boards, ten the prospects of the present Education Bill. recognised that there is little driving power Bill, and the forces of parochialism are all ur it. The Bill is a much bigger and better m most people give it credit for. The absence vision for enlarged areas has disappointed th a whole, but enough remains of solid value friends of education unite in putting forth ev get it passed.

THE following resolutions were adopted by th after long and acrimonious discussion (one of said in public that the proceedings would ha a dockers' meeting): (i) That school boards defray the expense of providing facilities education or recreation fields for pupils schools; (ii) that boards be empowered to pro for officers or servants other than teachers; provision of meals be not a charge upon the (iv) that free books be not provided; (v) incumbent on the Department to pay the wh one half (as proposed in the Bill), of the s teachers' pensions; (vi) that a sum of £4 apart from the consolidated school fund to r of the extra powers imposed by the Bill; (meeting petition against the Provisions of land) Bill.

SIR HENRY CRAIK, speaking at Inverness o tion (Scotland) Bill, said that he regrets it pose to deal with those larger questions of a and administrative area which must be settl problems of higher education can be dealt best possible way. At the same time, the many valuable features that ought to comm interested in education. It is satisfactory provision is made to supplement the insuffic of teachers under the Superannuation Act. this, not only in the interests of teachers, but wider interests of education, which require a contented profession. He attaches very grea to the proposals with regard to the compulsor at continuation schools. Compulsion, if it is t at all, must not be left to the option of schoo must be placed upon them as part of their sta There is at present an immense wastage of v in the three or four years that follow life in th schools. Sir Henry Craik also advocates tha time in the continuation school should be military training, not for the encouragement c but to teach, as no other training could, th discipline, obedience, and self-restraint that la roots of good citizenship.

THE sub-committee on Ordinances of Edi versity Council has issued its report on the pr amination. The report says that the prelimin tion, as it exists at present, is at once a source to the University and a serious hindrance to and efficiency of secondary schools. At prese may enter the University before he has compl liminary, with the result that some of the

ain to distract him from his proper degree
: is required is to see that the intending
reached such a fair level of general education
his being left free to pursue the particular
e he prefers. In such a course no subject
garded as compulsory save English. Such a
al fitness to take advantage of a university
mmittee considers is supplied by the Leaving
amination of the Scotch Education Depart-
committee consequently thinks the Leaving
nd the preliminary examinations should be
, and urges that the Education Department
proached to arrange a course satisfactory to
rsities. It should be noted that no provision
this proposal for granting entrance to any
have not had the advantage of a secondary-
ion. For this class some form of preliminary
other than a course must always be main-
ll other respects, however, the recommenda-
on sound educational lines.

ly issued report by Dr. W. Leslie Mackenzie
ing of school and personal hygiene to students
s teachers in Scotland is an interesting sum-
work now being done in this direction, with
thoroughness and very encouraging success,
hern Kingdom. All the training colleges in
d all the committees in charge of King's
ve instituted courses in the laws of health,
uch courses altogether were given in the year
was speedily discovered that the results of
simply expository lectures dealing with ele-
tomy, physiology, and hygiene were not satis-
is is not surprising, for the essential aim of
ion "is not the verbal reproduction of written
escriptions, but the practical skill that comes
directed observation." Since, however, the
om mere systematic lectures to practical train-
vation has been accomplished, the interest of
has been markedly stimulated, and their work
a very practical value. There is no school
some children inferior to their fellows in
al or mental capacity. This kind of training
permissible extension of the word, may be
nical," combines the recognition of defective
mental incapacity with instruction in the
its underlying cause, and not only disabuses the
ie natural assumption that all children should
same pace, but at the same time trains him
all the conditions which tend to obstruct the
education, both mental and physical. That
eacher thus learns to do speedily and with
an never, indeed, be a substitute for a system
spection; but it is indispensable to the success
ystem. For not the least important result of
ining in the elementary laws of health is to
teacher to discriminate between those slighter
om the normal which are of no consequence
ition of the child and those other and more
ilities which should be submitted for medical
. To this end the combination of observation
tration has proved exceedingly satisfactory in

ribbon of the French Académie des Inscrip-
es-Lettres has been conferred upon Dr. George
assistant-secretary in Edinburgh to the Scotch
epartment. His "Catalogue of Greek Coins"
terian Museum, Glasgow University, is de-
clared to share with "Corpus Nummorum," a publication by the Prussian Academy of Sciences, the distinction of being the most valuable contribution to archæology during the past year. Dr. MacDonald was Rhind Lecturer on Achæology in 1904, and is Honorary Curator of Coins to the Antiquarian Society of Scotland.

IRISH.

THE Government has proposed a plan for the improvement of Irish education, primary and secondary, but on account of the opposition of the Nationalists there is little hope that it will be carried into effect. Under the new Irish Council Bill of 82 elected and 24 nominated members, there was to be constituted a new Education Department, and, when constructed, the powers and funds of the present National and Intermediate Commissioners would be transferred to it, and the Commissions they represent would *ipso facto* cease to exist. Mr. Birrell in introducing the Bill stated that to this part of it he attached tremendous importance, and there can be no doubt that the reform of education is one of the most urgent of Irish problems; for the first time there would be in Ireland an Education Department having responsibility for both primary and secondary (but not university) education. The nucleus of the department would consist of a committee of the Council with power for the Lord Lieutenant to appoint outsiders, some of whom might be women, as additional members of the committee, these, however, not to exceed one-quarter of the total number of the committee. The committee would be appointed for three years. It was proposed to hand over to the Council, in addition to the present funds of the departments of which it would have control, a sum of £650,000, some of which was earmarked for special purposes, but some of the remainder would be available for education.

ONE point suggests itself. How much is the intermediate grant supposed to be? Mr. Redmond pointed out in the debate on the introduction of the Bill that it had fallen in the last two or three years by a sum between £12,000 and £15,000, owing to the drop in the "whiskey" grant. Although English education had suffered in a similar manner, there had been compensation for it by other grants; but in Ireland this had not been the case. If, as we understand, the Chancellor of the Exchequer proposes next year to replace the Local Taxation grants by a lump sum, we trust that for intermediate education it will not be on the scale of the last year or two, but on the scale of the several years preceding. Mr. Birrell quoted the figure as £81,000, but until 1905 it was regularly about £90,000. An attempt was made to raise a discussion in the House of Commons on this point, but it was impossible, as there was no vote of money on which it could be brought forward, unless, as was suggested, the Government consent to bring in a supplementary vote to compensate in the present year for the loss to intermediate education.

No date has as yet been fixed for the introduction of the University Bill, and there is therefore somewhat of a lull in the public discussion of it. There has, however, been one important pronouncement dealing with it during the past month, viz., that of the Roman Catholic bishops. After commending the Government for taking up the grievance and for proposing a speedy settlement, they stated that they believed that within the general outline of Mr. Bryce's plan the Catholic claims could be met and suitable provision made for the general educational interests of the country. Their resolution continued with some important words. The University question can only be settled

by a compromise, and while the bishops would like a Catholic University, they are definitely prepared to accept as final any one of the three proposals put forward by them before the Royal Commission, viz.: (1) a new Roman Catholic University; (2) a second college in Dublin University; and (3) a college in the Royal University. They will support the Government in proposing any one of these, but the Government must bear the responsibility of the choice.

AT the conferring of degrees in Trinity College towards the end of April about sixty women from Oxford and Cambridge were presented. At the luncheon which followed in the dining hall, the Provost seized the opportunity to explain how it came to pass that Trinity had offered *ad eundem* degrees to these students. No one was more surprised than Trinity College at the large numbers who had availed themselves of the privilege, but the proposal as originally made was intended to remedy the grievance which it was thought some Irish women resident in Dublin and elsewhere would have who did not possess a degree, and in the days before Trinity College opened its doors to them women had gone to Oxford or Cambridge. These women in present circumstances would have gone to Trinity, and in the course of a year or two would be unfairly handicapped owing to their want of degrees in competition with other women, fortunately born at a later date, who had obtained them. It was thought these would be very few, and the actual number coming across from England and elsewhere had quite surpassed all expectations. The privilege, however, would come to an end with the close of the present year.

THE twenty-fifth report of the Royal University, covering the year 1906, which has just been presented to Parliament, gives a verbatim account of the twenty-fifth annual meeting held in Dublin on October 26th last. The total number of persons entering for the various examinations of the University was 3,733, as compared with 3,474 in 1905. Whereas in 1881 only 508 students matriculated, in 1906 the number was 947. With the view of co-ordinating the University courses and those of the Intermediate Board, the Senate has enacted that any candidate who shall have passed the senior grade examination of the latter in the subjects prescribed for the matriculation examination of the University shall, on application in the year in which he has so passed, be entitled to be entered as a matriculated student of the University. This regulation has been welcomed by the schools as lessening the burden of examinations.

THE Department's *Journal* for April is remarkable for an account of technical instruction in the city of Belfast, the first of a series of articles which it is proposed to issue in the *Journal* on recently erected technical schools in Ireland. It is illustrated by some striking photographs of the new Municipal Technical Institute in Belfast, which has been erected at the cost of £100,000. The Institute covers an area of 133,862 square feet. The number of students last session was 5,000.

WELSH.

THE Board of Education has issued its new regulations for the preliminary examination of elementary-school teachers, to come into force on August 1st, 1907 (p. 208). By these regulations, bursaries will be given to young teachers, to be named bursars, allowed to teach from seventeen years of age upwards. The regulations are, of course, made for England only. Some dissatisfaction has been expressed at the omission of Wales and Monmouthshire from the new arrangement. Bu this is inevitable. The provision of a Welsh of Education excludes Wales from the En tions. If Wales wishes for a system of "bu to the Welsh Department it must look, so an extension of the English system.

THE Pembrokeshire County Council has deci the teachers in the provided schools of the cc accidents. The County Education Authority take any action with regard to the teachers provided schools. It is said that a legal (ports the Education Authority in its conter is not liable for damages with regard to non-provided schools. It may be so, but, a non-provided school teacher is teaching all subjects of the time-table, and an accident n to the teacher during these periods.

A CONFERENCE has been held at Aberystw education. Already the Law Department of tl College of Wales, Aberystwyth, prepares stu four-year course for the LL.B. of the Univers Lectures are also given by the Aberystwyth of Law at Swansea. It was decided to form Legal Studies for Wales to meet the problem education of articled clerks in Wales in bo and small towns. The directions of developm were the reduction of the university course f of LL.B. from four years to three, and the of short special courses for articled clerks on those now carried on at Aberystwyth and Swa

AT the annual meeting of the Welsh Co Association at Aberystwyth, a motion was passed deprecating the proposals in the Glam draft amended scheme for intermediate sch the power of appointment of assistants, now headmaster of the school, and to take awa power of dismissal. It was also resolved tl be made compulsory that any new secondary lished by education authorities should be und Act. The county schools have long bemoa inspection imposed on them, viz., by the C Board and the Board of Education. N association looks to the new Welsh Departme the mitigation of the worry incident to dupli tions. At the same meeting Mr. Rhys Mor the equipment of the laboratory for geograph at Pontypridd County School, which is claim first of its kind established in Wales.

ATTENTION ought to be directed to Dr. Fl on Welsh Anthropological Measurements as University of Wales Guild of Graduates. It appreciation of the help given by the Guild (and an appeal to schoolmasters, ministers, a give help in arranging meetings for carrying tions in various villages. A year ago the tot persons measured was 300; this has now b to 700, and includes a far greater proporti folk. The family history of each subject is fully as possible, about twenty observation features are set down, and twenty measure Such complex records can only be analysed and up to the present the rates of head-brea length and the degree of pigmentation hav taken into account. The following preliminar suggestions were made: It is probable th

d people represent the ancient stock of the lation of Britain, and they occur typically e villages. The dark, broad-headed people tall, medium-headed group may have together eltic people united by a common civilisation , the indications being that the light-haired he military and ruling caste.

ENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Hernani. Edited by C. Kemshead. xvi+166 n Press.) 2*s.* net.—This edition of "Hernani" es the standard of other volumes in the er French Series. The introduction contains summary of the history of the drama up ." It might have been pointed out that the ama owed more to the existing melodrama uence from abroad (Madame de Staël and me allusion to other Romantic plays might ade; nor should the important changes in y brought about by Hugo, have been passed statement as this (on p. 90), that "*enjambe*bly spoils the rhythm of the verse," is only e *enjambement* is very frequently employed, nani" that can hardly be maintained; on the e have as a consequence of more "overflow" inversion which often renders the speeches in trying. The notes give all historical informa- ecessary, and some philological details which er superfluous. Who, in reading "Hernani," told the derivation of *casaque* or *hasard*, or *ξεῖνος* is a poetical form of *ξένος*?

Tartuffe. Edited by C. H. C. Wright. ix+ ath.) 1*s.* 6*d.*—This play will hardly be read ls, although Mr. Wright has the schoolboy as ndergraduate in mind (p. ix). He has written duction and good notes. We are glad to ob- e text is preceded by the *Préface* of 1669 and *u Roi*.

Le Monde où l'on s'ennuie. Edited by W. R. 9 pp. (Ginn.) 2*s.*—We recommend this edi- leron's admirable comedy. The editor gives cts of the author's life, briefly and without cellent footnotes are added to the well-printed are also questions in French and some pas- anslation, with only occasionally an American s right here that reputations are made; she he five o'clock train"). The vocabulary is

ectures Françaises. Book I. By Jetta S. 135 pp. (Arnold.) 1*s.* 3*d.*—A good selection ans hackneyed prose and verse, with original by Miss Wolff, which particularly pleased ok is illustrated with some full-page repro- well-known pictures; we regret to see n the place of honour, and Lancret's picture much reduced. The *questionnaire* is rather ing only 13 pages to 104 of text. The vocabu- plete.

gur, Mémoires de Cadichon. Edited by J. F. pp. (Methuen.) 1*s.*—This forms a volume Simplified French Texts. The 400 pages of res d'un âne" have been skilfully compressed n 50. There are no notes; the vocabulary is nice reader for the third or fourth year.

Classics.

The Restored Pronunciation of Greek and Latin, with Tables and Practical Illustrations. By Dr. E. V. Arnold and Dr. R. S. Conway. Third and revised edition. vi+26 pp. (Cambridge University Press.) 1*s.*

How to Pronounce Latin: a few Words to Teachers. By Dr. J. P. Postgate. 32 pp. (Bell.) 1*s.*

The Roman Pronunciation of Latin. A Reprint of Sections from Dent's "First Latin Book." By H. W. Atkinson and J. W. E. Pearce. 29 pp. (Dent.) 6*d.*

With these pamphlets, the modern teacher need not be at a loss either for knowledge how to reform or for arguments in support of reform. The pamphlet of Prof. Arnold and Prof. Conway was first in the field, and for a long time stood alone; it still stands alone in dealing with Greek as well as Latin. This edition has been revised, and an appendix added on the Greek aspirates. This appendix is very good; it neglects, however, one important and convincing piece of evidence for the aspirated consonants in the Sanskrit transliterations of Greek names, which have been collected by the late Prof. Bendall. We should like to have seen an appendix also on the accent, the evidence for which is not easily available. Perhaps this subject was not fully dealt with because the writers seem to despair of its being practically useful; the possibility, however, is not to be summarily dismissed. Dr. Postgate's pamphlet is more controversial, and admirably sums up the arguments for and against reform: he also presents the evidence fully and clearly. A few Latin passages in phonetic transcript are added. Both these should be in the hands of every scholar. The third pamphlet is not of the same scientific value. Thus the writers state that long vowels differ from short in quality as well as in quantity (p. 6), which is not the case. Nor is Latin *i* the *i* of English *fit*, nor *ō* the vowel of French *chaud*. And the elaborate assimilation of final nasals, as given in the phonetic transcripts, is a needless difficulty: needless, because to a certain extent it is inevitable, and because we do not need to speak Latin in a coffee-shop; difficult, because it imparts another piece of self-consciousness when we wish to be natural. For the rest, the student will find the pamphlet useful.

The Satires of Juvenal. With Introduction and Notes by A. F. Cole. xii+382 pp. (The Temple Greek and Latin Classics.) 2*s.* 6*d.* net.—We have already reviewed two or three of these cheap reprints. Juvenal follows the same general type. The introduction and notes are kept down to a very narrow limit, and give only what is barely necessary. Gifford's translation is printed facing the text, and the notes point out any place in which Gifford used a different text. Gifford is really quite good, and he glides gently over delicate passages; the text is familiar. Altogether the book is worth buying. Satires II. and IX. are omitted; otherwise it seems to be complete.

Aeschylus in English Verse: Prometheus Bound and Suppliant Maidens. By A. S. Way. 106 pp. (Macmillan.) 3*s.* 6*d.* net.—Mr. Way has done so good service to classical study in his translation of Euripides, that we regret to be obliged to speak with dissatisfaction of his Aeschylus. Mr. Way has here attempted a task beyond his powers. Euripides depends for his effect on his substance, and his language is that of every day; his rhythms are also less careful than those of his great predecessors. But Aeschylus demands a fine ear and a noble vocabulary. Mr. Way has not a good ear. He is best in his iambics, although these are tame and commonplace in rhythm, and

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sometimes a line is hardly recognisable for iambic; many of the longer pieces, however, are quite readable. But the lyrics are painful in many places, and are not fit to be read aloud. His chief fault is a hurrying over full syllables. The so-called anapaestic metres are unsuited to the English language, except for short spells; they have a flippant effect as a rule, and quite spoil the impression of Aeschylus. Take this, for example:

"Fear nóthing! in áll loving-kíndness doth gáther our arráy, with swift rácing of pínions on-fáring."

We write it without dividing the lines, to show how unnatural is the emphasis. The slurring of three syllables (*gáther our arráy*) is especially offensive: it occurs often —on the same page we read "that Gód ill-fáted-who-of-Zeús is abhórred." We have noted a great many more examples of slovenly rhythms. The vocabulary, again, is not noble: "high-thoughted son of Themis," "deep-grassed mead," "to buckler," are chance examples. "The Suppliants" is better than "Prometheus," we think.

Multum in Parvo. 18 pp. each. Latin 6*d.*, English 6*d.* (Cambridge: Macmillan and Bowes.)—Mr. Dunn, late headmaster of Bath College, kept a record of common mistakes in Latin prose, and these were then embodied in 200 sentences full of "tips." These are here published in both Latin and English. They can be used for *viva voce* construing, and will undoubtedly be useful for that purpose. They are diabolically ingenious.

English.

Murray's English Literature Series. The Story of English Literature. (Elizabethan Period.) By E. W. Edmunds. 1–388 pp. 3*s.* 6*d.* *Readings in English Literature.* Junior, Intermediate, and Senior Courses. (Elizabethan Period.) 2*s.* 6*d.* each.—Here we have a very clear attempt to teach literature by means of a very full guide (the Story) and accompanying illustrations—the Readings. The experiment, it seems to the present writer, might be very successful in a good hand: but else it would be likely to fail. How could junior students using the junior course appreciate the advanced work in "The Story of English Literature," and how should the story intended for all three courses be dealt with three times in the boy's school life? The preface does not help us much, for it states that the "Story" is for schools and colleges and the illustrations for schools. Nevertheless, the authors (for Mr. Spooner has helped Mr. Edmunds) say that the method of using a critical and an illustrative book has succeeded; but why not have a school library? A large number of masterpieces may now be bought for half-a-crown, and the teacher may choose for himself. It seems ungracious to question the value of such admirable work: but we would rather see a little criticism (if we must have it) and plenty of illustration in one volume. It is surprising, too, to find a large part of "Romeo and Juliet" in the junior course, part of the "Rape of Lucrece" in the intermediate course, and a certain amount of Marlowe's extremely wanton "Hero and Leander" in the senior course. The first two seem unsuitable, and the last could scarcely be read aloud with any class, young or adult. Has not the title "The Story of English Literature" been used already by Miss Buckland?

The Foreign Debt of English Literature. By T. G. Tucker. 1–270 pp. (Bell.) 5*s.*—Such a book as this has been wanted for some time: it will collect and clarify *the student's* knowledge of bits of European literature, and *it is to be used along with* a good history of comparative literatures. The debt of England to Homer and Euripides: the debt to Virgil and Ho fabliaux and the old French Romances; t Petrarch: we all know something of this, is lucidly set forth. One complaint we have that is that Dr. Tucker has not dealt with the matter of form. How was old Englis verse killed? Who made rhyme, our sens rhyme, so popular, that we can scarcely dc What authors established the law that sense v is insufficient? These are questions which pe treated in another volume. Many suggestiv inserted.

Higher English. By F. J. Rahtz. 1–376 pp 3*s.* 6*d.*—This volume is mainly a guide Matriculation English, and, though it is nc very full, and for its purpose complete. Sure gotten, graven, shorn," are not "only used a and "coalition" does not require dots of d treatment of inverted commas is insufficient, on slang are, in these slangy days, ninety li The illustrations, generally, are abundant.

The Red Letter Shakespeare. King Lear E. K. Chambers. *Titus Andronicus.* Edite Chambers. *Hamlet.* Edited by E. K. Chambe 1*s.* 6*d.* net each.—We feel sure that lovers of who have once become acquainted with this will not rest satisfied until they possess all th attractive a dress. Mr. Chambers's introduc added charm to these volumes.

The Red Letter Library. Walden. By Thoreau. With an Introduction by Richa (Blackie.) 2*s.* 6*d.* net.—A worthy addition to and widely appreciated series.

History.

An Introduction to the History of Modern A. Weir. xv+340 pp. (Methuen.) 6*s.*—On the beginning of a chapter on National I Germany, the author summarises his previou such a way that we cannot give a better ac book than by transcribing his words. "After been taken," he says, "of the political s aspirations, of the industrial organisations, principles and mechanical resources, of the sci ledge and speculative insight of a period . . remains . . . the province of pure literature. words, this is an exposition of European h the middle of the eighteenth century with its despots to the immediately post-Waterloo time historical in form, the book does not prete history, but aims at presenting such a preli of the immediate antecedents of modern ci will supply a sufficient basis for a compreh of our age." In this aim the author has large measure of success. The book is not reading, and at times we wish the meanin clearer, but it will help the careful reader to the European revolution which is commonly "French." Dates are sometimes missing in there is a chronological table, as well as graphies and an index.

History of England. Vol. i., to 1509. By Perry. xvi+362 pp. (Relfe Bros.) 3*s.*—Dr. master of St. Anne's School, Redhill, is diss "the general method adopted by writers of th

use," and thinks that "more importance ought to the study of the development and growth of Constitution." He has therefore "endeavoured s own opinions," and the result is the book w. We think Dr. Perry has been unfortunate -books he has seen. We can assure him that more recent, the names of which he does not ow, would quite satisfy his requirements, and saved him the trouble of writing a book. At e cannot recommend his attempt. He is quite in his information; the authorities he quotes most part antiquated; his constitutional history oned and incorrect in many places. And for s of a school text-book he has another defect. uction of his sentences is often faulty, some- aps, owing to printers' errors, but sometimes

of the European Nations. By A. R. H. vi+194 pp. (Blackie.) 1*s.* 6*d.*—This is a very book—one of those which children would read wn pleasure and to their great profit. Hanging almost entirely on the lives of famous men, a given of the progress of European civilisation rojan war to the battle of Waterloo. The other- s story of the Middle Ages is made interesting chapters which depart, wisely, from strict al order, and it would perhaps have been well dates *and an index* had been added. We hope edition will afford the opportunity for this nt.

and Progress of the English Constitution. By sy. xi+333 pp. (Macmillan.) 3*s.* 6*d.* net.—The of Sir E. Creasy's book was printed in 1853, h in 1892. This is a "seventeenth and revised" Obsolete matters have been removed, and the ers have been brought up to date." But we oubt the advantage of this putting of new wine ttles. So much has been discovered since 1892, ew methods of telling our constitutional story into deserved vogue, that when the editors y have reformed it indifferently" we feel in- eply, "O reform it altogether."

Geography.

Islands. By H. J. Mackinder. xv+298 pp. s. 6*d.*—This is the first of Mr. Mackinder's ipated "Elementary Studies in Geography," excellent foretaste. Three others are to follow: eyond the Channel," "Distant Lands," and ish Empire." When completed, the series will wants of an elementary or preparatory school. inder is nothing if not original. Even in his chapters he strikes a new note; he breaks tment of England by interpolating chapters on reland, and Wales, and justifies himself with n that "the essential contrasts of our land are ciated when it is considered whole." He is at hen he is insisting on the *human* meaning of -and this, we are glad to see, he is always ne by cause and effect; he is weakest when he down to the level of his young readers. His lates oral instruction; his maps effect realisa- should have preferred more exercises in the must perforce be left to the teacher to initiate, ll find plenty of material. The pictures—and a large number—are well selected, though not rinted. Nevertheless, they are genuine *illustra- tions*, and should serve the purpose of "question and answer" with gratifying results. The language is easy; there is perhaps a little too much of the appeal to the teacher here and there. The facts are simply put, and the reasoning is clear; that they are accurate goes without saying; that they are up to date is apparent, even though the publishers have not inserted a date on the title-page. There is no index, a defect to be remedied in the future editions, which are sure to be called for.

A Junior Course of Comparative Geography. By P. H. L'Estrange. viii+239 pp. (Philip.) 2*s.* 6*d.* net.—In this book, Course A of Mr. L'Estrange's "Progressive Course of Comparative Geography," which we reviewed at length in our issue for February last (p. 76), is published separately. It is unnecessary to state again the characteristics of the method of treatment; it will suffice to say that enough material is provided for two years' work for pupils between the ages of eleven and thirteen, and that the book covers all the countries of the globe.

Philips' Progressive Atlas of Comparative Geography. Edited by P. H. L'Estrange. (Philip.) 3*s.* 6*d.* net.—The coloured maps from "A Frogressive Course of Comparative Geography" are here published separately. The seventy-two plates with their 172 maps and diagrams should provide everything in the way of an atlas that ordinary classes in a secondary school require. The maps deal with the following aspects of each country: surface characteristics and structure, seasonal temperatures and pressures, winds and rainfall, vegetation, minerals, communications, distribution and population, and political divisions.

Philips' Handy-volume Atlas of the World. By E. G. Ravenstein. Seventy-two plates with 112 pages of index. 3*s.* 6*d.*—An atlas which, like this, has reached its seventh edition needs no recommendation here. It is sufficient to state that all the statistical matter in the letterpress has been revised and carefully brought up to date. We are confident that this very convenient atlas will maintain its well-deserved popularity.

Round the World. 72 pp. (Philip.) 6*d.*—This is a first reader in elementary geography, and is adapted to Philips' "Geographical Chart" or "Wall Atlas" for elementary classes. The language is simple, and the print and paper excellent; but, given the chart above alluded to and a reasonably good teacher, one can hardly understand the *raison d'être* of the book.

Mathematics.

The Teaching of Mathematics in the Elementary and the Secondary School. By J. W. A. Young. xviii+351 pp. (Longmans.) 6*s.* net.—At the present moment there is no subject that is being more earnestly discussed among teachers than that of the training of the teacher, and the recent discussions on school mathematics have often led to the conclusion that the teacher is of much more importance than any syllabus for the efficient education of the pupil. There is no doubt that the best teachers are born and not made, but it is also true that the finest natural aptitudes can be made more efficient by proper training, and that for the average aspirant to the teaching profession training is indispensable. The book under notice is one of the American Teachers' Series, and is thus to a certain extent limited by the conditions that exist in the United States. But the main theme is not confined to any geographical boundary, and the value of the book is nearly as great for teachers here as for those in America.

The range of the book is very extensive, and a mere enumeration of the titles of its fifteen chapters would exceed the limits of space at our disposal. It is perhaps sufficient to state that there is hardly any question that can arise with respect to the teaching of school mathematics that is not carefully discussed from more than one point of view and illustrated by quotations from many writers. A good bibliography adds greatly to the value of a book which deserves the careful study of all who are interested in the methods of presenting mathematics to the youthful mind, and which should be of special interest to teachers.

A School Algebra Course. By F. Gorse. xii+300 pp. (Cambridge University Press.) 3*s.*—This work is not so much a text-book of algebra as a collection of examples, which covers the ground up to and including the binomial theorem. The examples are well arranged, and, especially at the beginning, are very well adapted for the average pupil. As a collection of exercises the book has much to recommend it, but we should be sorry to see it become the type of text-book for school use, though we are well aware that many excellent teachers desire that nothing more than sets of examples should be in the hands of their pupils.

Elementary Geometry. By Cecil Hawkins. New edition. viii+306 pp. (Blackie.) 3*s.* 6*d.*—The changes made for this edition are said to have been suggested by experience in the class-room, the most notable, so far as we can judge, being in the treatment of parallels. The book is a good piece of work. We are sorry to find that experience has led to the postponement of proofs by symmetry; if it be the case that that method is too hard for beginners, then it must, of course, be reserved for a later stage.

New Geometry Papers. By Rupert Deakin. 103 pp. (Macmillan.) 1*s.*—There are eighty-four papers, each containing six questions. The papers are divided into fourteen sets, and at the beginning of each set are given the enunciations of the problems and theorems that are specially used in the set. The questions are usually very easy, and seem to be quite suitable for use with elementary classes; and as they cover the field of geometry up to and including similar triangles, they may be found serviceable in the school-room.

Science and Technology.

Nature Studies and Fairy Tales. Part ii. By Catherine I. Dodd. 224 pp.; 16 plates. (Nelson.)—In a commendatory introduction to these lessons for infants, Mr. W. Scott Coward thus describes their aim: "Miss Dodd begins with literature, . . . and, selecting the fairy tale as the most suitable, chooses for the season of the year a subject whose details permit of the introduction into her scheme of the various natural objects, such as birds, insects, trees, flowers, &c., belonging to that season. The drawing of these objects by teachers and scholars finds its proper place in the scheme. Poetry of a suitable character is enlisted into it; and the teaching is all drawn together to culminate in the unfolding and enforcement of some wholesome and important moral lesson." We are assured, and can well believe, that such lessons have met with great success in practice.

Principles of Botany. By J. Y. Bergen and B. M. Davis. ix+555 pp. (Ginn.) 6*s.* 6*d.*—This admirable text-book should meet with a warm welcome. Though its method of treatment is essentially elementary, its point of view is well abreast of recent discovery and spec fairly advanced students will find it to c stimulating chapters. Among special featu mentioned a consecutive series of instructiv typical cryptogams as illustrations of the evol tory of plants, and a clear discussion of ecolo The remarks on classification are so good that will wish they had included considerably more book contains some 400 excellent illustration

Introduction to Plant Ecology. By G. Hens pp. (Stanford.) 2*s.* 6*d.*—It goes without sa essay by Prof. Henslow on "the study of at home" will amply repay perusal, and both students of botany will find this little book of information and—what is even better—sug gather that its immediate object is to assist c the examination in botany of the Natural Sci Cambridge; it ought, however, to appeal to a circle of readers.

The Principles of Horticulture. By Wilfred 136 pp. (Blackie.) 2*s.*—This "introduction etical side of horticulture" has been written the benefit of those engaged in its practic nothing but praise for the book. It is wr simplest of language, yet with scrupulous a illustrations are excellent and numerous; and the fact that successful gardening depends method is convincingly demonstrated.

An Introduction to Practical Botany. By E 127 pp. (Dent.) 2*s.*—This consists of seventy arranged on the heuristic system. The subj ciously selected, and the questions are designe accurate observation and thought on the part The course is suitable for young beginners, cordially recommended.

Seasonal Botany. By M. O'Brien Harris. terleaved. (Blackie.) 8*d.*—A most useful se teachers on the arrangement of the work of general and physiological botany. The three mapped out is primarily intended for pupils w viously gone through a course in experimental

The Commoner Wild Birds of Great Britai T. Price. 62 pp. (Gurney and Jackson.) 1s who wish to identify the birds they meet in co will find this little book a useful pocket-com method of classification used is somewhat roug but, considering its purpose, is no worse on th

Miscellaneous.

In Statu Pupillari. viii+287 pp. (Swan S 6*s.*—This is an anonymous novel dealing wit girl students at the women's college of "Hy near the University of "Atlantis." The geo academical terms used throughout show "Hypatia" stands for Newnham and "Atla for Cambridge; and it seems likely that fictitious personages introduced could be rea with "real" personages by the Granta. traiture is done with such sympathy that it give offence to the originals, if there are any still live (for the story deals with the e Hypatia); and in this respect, as in many oth contrasts very favourably with several notabl one should say "notorious") attempts to des sity life in the form of fiction. Quite apar personal matters (which naturally appeal mor

ged within the pale of the University), the
warm commendation for the skill with which
troduces typical scenes without wearying us
sational and the hackneyed, and especially for
t not blind insight displayed in depicting the
d aspirations connected with the introduction
lucation for women, and the thoughts and
ll-differentiated specimens of the sweet girl
e heroine is often reproached by her girl friends
'too feminine"; but neither her friends nor
now her only from her biography think any
her for that. Neither those who have them-
nced life in a women's college, nor those who
d that experience, could safely pronounce on
a general verdict such as "true" or "false";
wever, it impresses itself on one with a slight
from the outside, with such life as simple,
interesting, and true to nature.

CORRESPONDENCE.

do not hold themselves responsible for the expressed in letters which appear in these As a rule, a letter criticising any article or inted in THE SCHOOL WORLD *will be submitted tributor before publication, so that the criticism may appear together.*

Dorothea Beale Memorial Fund.

y after Miss Beale's funeral the Cheltenham ge Guild, which represents the former pupils ge, took into consideration the question of a perpetuate her name. A committee was nd communications were opened with the the staff of the college, such of the pupils, sent, as could be easily reached, and a few of personal friends. As a result of these com- more than £1,200 has been subscribed in g from £50 to a shilling, and after careful i it has been decided that the memorial should n of:

t to be placed within the college, which is, of Beale's true monument.

ument as worthy as may be of its surround- Lady Chapel in Gloucester Cathedral, where to rest.

l for the benefit of members of the staff, past nd of old pupils who may be in special need.

ght that the time has now arrived when others riginally addressed may be invited to associate with this tribute to Miss Beale's memory. any old pupils whose addresses the researches ittee have been unable to discover, and many hise with Miss Beale's work and revere her o have not been directly connected with the E SCHOOL WORLD will be able to give us istance in letting these classes know what has nd is doing in the matter, and I venture to ask e us to secure that assistance.

tary of the committee is Miss M. M. Shewell, Cheltenham. The treasurer is Miss Agatha dies' College, Cheltenham. Subscriptions may he treasurer or paid to Lloyds Bank, either at or at 16, St. James's Street, London, S.W.

JOHN R. MAGRATH.

f Queen's College, Oxford, and Chairman of Beale Memorial Committee.)
ollege, Oxford.

The British Association's Educational Programme.

THE British Association will meet from Wednesday, July 31st, to Wednesday, August 7th, under the presidency of Sir David Gill, K.C.B., F.R.S. The president of Section L (Educational Science) is Sir Philip Magnus, M.P., and the vice-presidents of the same section are Mr. W. M. Heller and Prof. M. E. Sadler.

The chief educational discussions will be on Thursday, Friday, Monday, and Tuesday, August 1st, 2nd, 5th, and 6th. The following provisional programme will be of interest to teachers and other educationists who are able to attend the meeting.

Sir Philip Magnus in his presidential address to be delivered on the morning of Thursday, August 1st, may be expected to reflect experience gained in a long career of educational work as lecturer and examiner, superintendent and secretary of the Department of Technology of the City and Guilds of London Institute, member of the Royal Commission on Technical Education (1881–1884) and of the London School Board, member of the Senate of London University, and representative of the University in Parliament.

On the same day there will be a joint meeting with Section H (Anthropology) to discuss the measurement of development in childhood, with particular reference to the recommendations of the Physical Deterioration Committee (1904, Cd. 2175). It will be remembered that this committee found no trustworthy evidence whatever to show whether the nation was or was not progressively deteriorating, and therefore advised the collection of definite data "with a view to correct impressions, however acquired, and to get at the bedrock of fact." Sir Victor Horsley, F.R.S., will urge that the report of the committee should be put into execution by the Government. Prof. D. J. Cunningham, F.R.S., will give an account of the work of the Anthropometric Committee of the British Association, which during the past year has included the consideration of anthropometrics in schools. Dr. F. C. Shrubsall will deal with the kind of measurements which should be taken, the objects of various measurements, and some results obtained. There will also be a paper by Mr. J. Gray on some correlations which have been worked out from results of measurements, and one by Mr. E. Meyrick, F.R.S., Marlborough College, on practical difficulties.

The whole of Friday, August 2nd, will be occupied with a discussion of the Scholarship System. Invitations to contribute papers on this subject have been accepted by Miss J. Cleghorn, member of the Executive of the National Union of Teachers; Mr. A. R. Pickles, President of the National Union of Teachers; Miss S. Heron, Headmistress of the Wyggeston High School for Girls, Leicester; Mr. J. L. Paton, High-Master of the Manchester Grammar School; Mr. G. Gidley Robinson, representing Preparatory Schools; Rev. A. A. David, Headmaster of Clifton College; Mr. H. B. Baker, F.R.S., Lee's Reader in Chemistry to the University of Oxford; Prof. H. A. Miers, F.R.S., Waynflete Professor of Mineralogy, Oxford; and Prof. M. E. Sadler, Professor of the History and Administration of Education, Victoria University, Manchester.

The curricula of secondary schools will form the subject of discussion on the morning of Monday, August 5th, in connection with the report of a committee on that subject. The committee was appointed at the York meeting "to consider and advise as to the curricula of secondary schools; in the first instance the curricula of boys' schools," the members being, chairman, Sir Oliver Lodge, F.R.S.; secretary, Mr. C. M. Stuart; also Mr. T. E. Page, Profs. M. E. Sadler, H. E. Armstrong, F.R.S., and J. Perry,

F.R.S., Sir Philip Magnus, M.P., Principal Griffiths, F.R.S., Dr. Gray, Prof. H. A. Miers, F.R.S., Mr. A. E. Shipley, F.R.S., Prof. J. Findlay, and Sir William Huggins, K.C.B., F.R.S.

In recent years the scientific teaching of various school subjects has been considered, and there have been reports or discussions on the teaching of chemistry (Leeds, 1890), of mathematics (Belfast, 1902), and of botany (Southport, 1903). This year there will be a joint meeting of Section D (Zoology) with Section L on the "Teaching of Biology in Schools," to be introduced by Mr. O. H. Latter, senior science master at Charterhouse. Prof. S. J. Hickson, F.R.S., and Mr. M. D. Hill (Eton) will take part in the discussion.

On the morning of Tuesday, August 6th, there will be a continuation of the discussion started by Prof. A. Smithells at York on the possibility of extending the scientific spirit to domestic subjects in girls' schools. Among other papers will be one by Mrs. Ramsay Macdonald on "The Technical Day School for Girls." In the afternoon a discussion on "Scientific Teaching in Relation to Trade Classes and Industrial Requirements" will be opened by Mr. C. T. Millis, Principal of the Educational Department of the Borough Polytechnic Institute, London, who will deal with "Problems of Trade Education considered in Relation to our School System"; and Mr. J. H. Hawthorn, Headmaster of the Municipal Technical School, Leicester.

No technical qualification is required on the part of an applicant for admission to the association as a member or as an associate. Members pay £2 on admission, and £1 for any subsequent year in which they attend an annual meeting, without further liability. Associates pay £1 for each annual meeting they attend. Ladies are admitted on the same terms.

It may save some trouble if all inquiries as to tickets, list of hotels, and lodgings and other local arrangements are addressed to the Hon. Local Secretaries, British Association, Leicester. Communications affecting only the business of the Educational Science Section should be sent to one of the following secretaries: W. D. Eggar, Eton College, Windsor; L. Saville Laver, Wyggeston School, Leicester; Hugh Richardson, Bootham School, York; or to me.

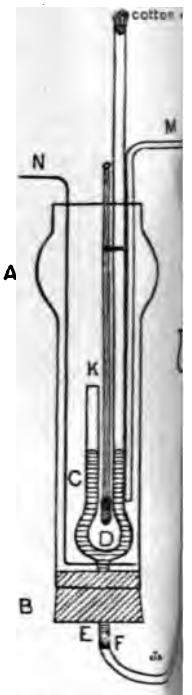
R. A. GREGORY
(Recorder).

39, Blenheim Road,
Bedford Park, W.

Experimental Determination of Charles's Law.

THE apparatus is a simplified form of that sold by Messrs. Gallenkamp and Co., and was designed to maintain the mercury column in each tube at the same temperature. The results obtained, even in the hands of younger students, are gratifying, and the apparatus can be supplied to a large number of students at a low cost.

The outer vessel A is a large-sized lamp-glass, 31 cm. long, 6 cm. wide at the top, and 8 cm. wide at the bottom. The top of the lamp-glass is fitted with an india-rubber bung, B. The most important part of the apparatus is the inner tube, C, which consists of a piece of tubing, 1 cm. external diameter and about 65 cm. long. This is bent, in the bat's-wing burner, to the shape shown. Before bending it is well to ascertain that the bore of the tube is constant, and the interior should be well cleaned. The short limb of the tube must be closed, and should be flattened by pressing on a smooth, flat surface. The difficult part in the construction of the tube is the three-way at D. This is made (after sealing the short limb and bending) by carefully heating in the foot blow-pipe flame a small portion of the bottom of the tube at D, and then blowing gently. A small "aneuri formed at the heated portion of the glass tube, when broken carefully, will give a circular hole the same sectional area as that of the tubing. 12 cm. of tubing (preferably from the same le tubing from which the other portion has been cut) hot at one end, and at the same time the circular the other tube is similarly heated. Both these op are carried out simultaneously in the foot blow-pip and if care is taken no water will condense insid of the tubes. When both pieces of tube are "so end of one is placed carefully on the circular hol other, and, by heating and gently blowing, a go joint is obtained. The joint must be carefully by allowing it to cool down very slowly. The sid at D is now fitted through a hole in the bung at is fitted with a piece of indiarubber pressure tubin This terminates in a thistle funnel at H, and means the air in C can always be kept under a constant pressure during an experiment. A thermometer (preferably one reading to 1/10ths of a degree centigrade) is fitted, by means of rubber bands, between the two limbs at K, and its zero adjusted to the top of the meniscus of the mercury when the level of the mercury is the same in both tubes. The length of the air column (as well as the temperature of the bath) at the commencement and at the end of the experiment can be read off easily by means of the thermometer scale, because, if the tube is of constant bore, the volume of the tube will be proportional to its length. Steam is passed into the water in the lamp-glass through a glass tube, M, and the temperature is kept constant throughout the water by the stirrer at N.



In order to carry out an experiment, the reservoir is raised or lowered until the level of in the two limbs is the same. The length of column is read off simultaneously with the temp Steam is now passed into the water until a rise 50° C. has been registered, the water in the la being well stirred the whole time. The steam now disconnected, the levels of mercury onc adjusted by means of the reservoir, and the lengt air column and the temperature of the bath read o

The following example is an experiment carried the school laboratory with this apparatus:

Let α = the coefficient of expansion of air.
Length of air column at start = 42 divisions = L
" " finish = 48·5 " = L'
Temperature of bath at start = 4° C. = t
" " finish = 47° C. = t'.
Then 42 divisions of air heated through 43° C. expand 6·5
and " " " 1° C. " $\frac{6·5}{43}$
= 0·151 division.

sions were cooled to 0° C., the total decrease
·151 × 4 = 0·604 division, and the length of the
at 0° C. would be 42 − 0·604 = 41·396 divisions.
divisions at 0°C. expand 0·151 division through 1° C.

division ,, expands $\frac{0\cdot151}{41\cdot396}$ divisions ,,

$= 0\cdot00365.$

cient of expansion may also be obtained from

$$L' = L(1+\alpha t),$$
$$\alpha = \frac{L' - L}{tL},$$

case L must be the length of the air column
d t the interval of temperature from 0° C.

$$\alpha = \frac{48\cdot5 - 41\cdot396}{41\cdot396 \times 47}$$
$$= 0\cdot00365.$$

ient of expansion is given direct from the

$$\frac{L}{L'} = \frac{1+\alpha t}{1+\alpha t'}$$
$$= \frac{42}{48\cdot5} = \frac{1+4\alpha}{1+47\alpha}$$
and $\alpha = 0\cdot00365.$

may be constructed on squared paper, having
of the air column plotted as abscissæ and the
es as ordinates. A straight line will be obtained
ild cut, when produced, the zero of volume at
(absolute zero). For this exercise the read-
e temperatures of the bath and lengths of the
should be taken for every 10° C. In order to
his, the boiling flask should be fitted with a
tube, one way of which is fitted with a piece
tubing and a pinch-cock. The removal of the
rts the passage of the steam from the lamp-
e air. E. T. Bucknell.
ip's Grammar School and the Oratory School,
hston, Birmingham.

Pessimism in Education.

scussion between Prof. Armstrong and Mr.
has gone beyond the subject of literature teach-
is touched what is behind the teaching of any
nd extended to the aims underlying all educa-
at might be called the conservative and liberal
opposed, and the acquisition of knowledge joins
the raising of character and learning the art
They should join forces; but since it is the
ost teachers, and even the tendency of the re-
to give the first, it is well to emphasise Prof.
's views at the expense of Mr. Oliphant.
er has not, I think, criticised Prof. Armstrong's
irly, for he has taken phrases and sentences
r context, and has forced them into a meaning
n, deducing from this the idea that the article
Neglected Art of Plain Reading" is contra-
nd that Prof. Armstrong means ten times more
oes.
t not be better to see whether Prof. Armstrong's
s against the average teacher and the teaching
h do not contain a great deal of truth—truth
thers beside himself have discovered? Mr.
is quite right when he says that "if the youthful
not attracted at the outset, there is great risk
is later work in literature will have too much of
cter of drudgery to fulfil its purpose, and that
of private reading will never be firmly estab-
lished," and also "a premature beginning will only dull the edge of appetite, and may even create a distaste that will never be really overcome." But so is Prof. Armstrong right in saying, "Having made this admission, he at once proceeds, however, to recommend a course of reading which undoubtedly would savour of drudgery in the eyes of every healthy boy." Mr. Oliphant actually proposes that boys and girls should study Southey's "Life of Nelson," after a year or two of Scott! I have known students of twenty or twenty-one pronounce that book "dry"—what would children of fifteen think of it? Boys would not "take what was put upon them without demur" if it was of that kind, and neither would girls, who are not such "dear obedient creatures" as Prof. Armstrong seems to think, for which let us be thankful.

What is it we do need to aim at in literature teaching? At the back of all the subordinate aims is there not the prime one of inculcating a desire to read the best, and the wish to go on with it when school days are over? The books borrowed from libraries show that this aim is but feebly carried out, for the most popular are far from the best. The reason for this is twofold: there is a dislike for good literature or there is ignorance regarding what is the best to read. The impression that good literature is dull and only fit for school reading is caused by prematurely forcing what would at a later stage be appreciated and enjoyed. Mr. Oliphant would do this by his selection, and in no study is it so inexcusable, for it frustrates the very aim of literature teaching. All children like stories; therefore the beginning can be with them. Delight in a story will lead to enjoyment of beauty in language and thought, and thence to discussion on style and opinions. In this later stage the teacher has the opportunity of instilling more than a love of literature. He can guide thought, check conventionality, and inspire ideals. It all depends on the teachers, in spite of Prof. Armstrong's opinion that they do too much and stand in the way. They cannot do too much so long as the pupil does it too, nor can they give too much. But they must have it to give, and that is where Prof. Armstrong is right in his so-called pessimism—the majority have it not to give. They have not learnt the value of individuality, and walk in the paths of convention. Prof. Armstrong recommends the "Upton Letters" to striving teachers; let there be added to that a far more inspiring book, Kappa's "Let Youth but Know."

A guide is necessary to the young traveller in the realms of reading, but he must feel that the guide is trustworthy, for if he is decoyed into reading something "dry" he will not follow again. No book that is read in school should be, or become, dry; if it does, something is wrong somewhere. When it is finished the readers should be glad they have read it, and wish for more like it. An informal discussion at the end of the year on the books read will show what has been appreciated and give limits for the next year's work.

Prof. Armstrong's advice to boys and girls to read practically anything and everything, and in time they will learn to separate the wheat from the chaff, is rather too wide. Most would separate the two in time, but some chaff in the shape of novelettes and penny dreadfuls will have left its influence behind, and it would remain even after the cause had become nauseous. Mr. Oliphant is right when he says that "even if all young people had ready access to a well-stocked library, the greater number would rarely enter it except under compulsion, and of those who did venture inside, the majority would be satisfied with the most frivolous books they could find,

and would never develop a taste for any other class of literature unless through some outside influence"; but he does not suggest the right influence.

Ignorance of what is best is often the cause of its neglect, and many young people with an innate taste for beauty of thought and expression gradually lose it after school days for want of using and satisfying that taste. Besides recommending authors and books, a list of the books which everyone ought to have read by the time he or she is twenty-one would be useful. It would be a guide to after-school reading, and form a starting point for further study.

Of course, opinions will differ as to the books in the list, but the following is an attempt:

Fiction.

Dickens, "David Copperfield," &c.; Scott, "Ivanhoe," "Waverley," "Kenilworth," &c.; Goldsmith, "The Vicar of Wakefield"; C. Brontë, "Jane Eyre"; Kingsley, "Water Babies," "Yeast," "Hypatia"; Thackeray, "Vanity Fair," "Esmond," &c.; George Eliot, "Adam Bede," "Mill on the Floss," "Silas Marner," &c.; Reade, "Cloister and the Hearth"; Meredith, "Ordeal of Richard Feverel"; Macdonald, "Robert Falconer."

Poetry.

The poems in Palgrave's "Golden Treasury of Songs and Lyrics," parts i. and ii.; Shakespeare's Plays.

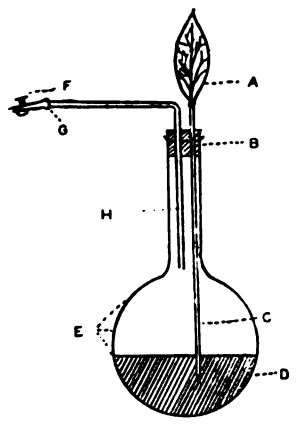
Essays, &c.

Drummond, "The Greatest Thing in the World"; Lamb, "Essays of Elia"; Holmes, "Autocrat of the Breakfast Table"; Carlyle, "Heroes and Hero-worship"; Emerson, "Essays"; Ruskin, "Sesame and Lilies" (for girls especially).

E. M. WHITE.

Experiment to show the Existence of Openings on Leaves.

THE following experiment, which I have used for showing that the external coating of a leaf must be pierced by openings, may be of interest to some of your readers. The apparatus is shown in the accompanying figure. The leaf (A), which must be quite undamaged, is sealed by its petiole into a piece of glass tubing (C) drawn out to a fairly fine point and dipping into water (D) contained in the flask. Through the two-holed rubber stopper (B) passes the tube (C), and a second piece of tubing (H) bent at right angles, fitted with a piece of rubber tubing (G) and clip (F). On exhausting the air above the water, a stream of bubbles rises from the end of the tube C to the surface of the water. By continuing the process of exhaustion, the stream of bubbles may be produced indefinitely, and hence, since all the joints of the apparatus are *air-tight*, the experiment shows that there *must* be openings in the surface of the leaf. Further, on fastening the clip, the size of the air bubbles, which still appear, gradually diminishes, until finally the bubbles themselves disappear. The explanation of the latter part of the experiment is a useful exercise on pressures.



The County School, Barry, Glam. E. H. DAVIES.

English Conversation Assistants in German

I WISH to direct the attention of your read scheme, arranged by the Board of Educatio Prussian Minister of Education, by means Englishmen can be appointed "conversation in first-rate German schools.

I take this upon myself because it was official few days ago in the Prussian House of Rep that, in consequence of the fact that Englishm availed themselves of this opportunity in sufficien it was proposed to throw it open to American this can only arise through prevalent ignora scheme among English teachers and students, all interested in the subject to the Director Inquiries, Board of Education Library, St. House, Cannon Row, Westminster?

The arrangement is intended for those who wi the German language, but I stated frankly tha German was a secondary consideration; I wishe in a German university. Every facility was gi was treated by the staff and director of the s the utmost politeness, and my "conversations" a continual source of interest and recreati average two hours a day, and the uniform sal £5 10s. a month.

Hoping Englishmen will take pity on the po youth and save him from the impending peril accent.

ERNEST BOWMAN

Karlstr. 17, Kiel.

The Aim of Modern Language Teache

No one would nowadays maintain that to for written tests is the aim of modern language

This passage occurs in an excellent paper by Vipan in your issue for May, 1907. Is the writ in making this easy assumption? The requi external examiners absolutely necessitate intermi practice on the part of the class. Even H.M. (who, whatever they may be in theory, are also examiners) attach the utmost importance to r matical accuracy, such as can only be attain extensive paper practice. Now, the avera language master knows that his bread and but —next to his disciplinary powers—on his power the external examiner and the Government Ins such circumstances I venture to think that Mr. jumped somewhat too hastily to his apparently conclusion.

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The School World

A Monthly Magazine of Educational Work and Progress.

)3. JULY, 1907. SIXPENCE.

APPROACH TO LINEAR AND QUADRATIC EQUATIONS.

By J. M. CHILD, B.A., B.Sc.
in Mathematics, Technical College, Derby.

paper is written in the hope that it will useful in suggesting means for sur-unting some of the difficulties, and as g against some of the pitfalls, which path of the beginner in algebra. These words form the very epitome of all the There should be no such thing as a r in algebra." Algebra should be so as generalised arithmetic—that the boy well forward on his way before ever es that he is doing anything else but c. If "substitutions" are taught from used in physics, engineering, and other of science—I have found a lesson on and geometric progression a good in-to algebra!—symbols will rapidly take "live" meaning. A lesson on arith-L.C.M.—the method used being, of at of "prime factors"—should be fol-, or rather merged into, one on in-vers, and logarithms treated graphically. in arithmetic on the meaning of "one-times six," in which the convention $b = b \times a$ for all positive numbers is as the fundamental law of multiplica-boy ever yet really understood the r" explanation—should be followed by , by areas of rectangles, that

$$(a-b)(c-d) = ac - bc - ad + bd,$$

s $a > b$, $c > d$, the minus sign having its ithmetical meaning. Hence, *assuming ula as the fundamental law for multi- of all quantities*, the "rule of signs" mediately.

not multiply examples further; I have utlined such a scheme as this in these

It may be worth mentioning that on ent text-books are in use in which arith-algebra are worked together in parallel. h a method is, unfortunately, not in se in England is, however, manifest from the reports of various examiners. In spite of the recent reform in teaching elementary mathematics, and the general introduction of graphical illustrations, algebra is still a thing of symbols, signs, RULES, and that magical letter of mystery, x. In this connection I feel very strongly that Mr. Hall, in his letter to THE SCHOOL WORLD of April, 1905, strikes at the very root of the matter. Graphs are too often taught—and frequently badly at that—too much for their own sake, and too little for their legitimate purpose—illustration, suggestion, and verification. A question on graphs is bad (with a big B) if the *curve* is the sole end and aim: the curve should be simply the means of illustrating and clearing up some difficult point, such as interpolation; of suggesting new ideas, such as the algebraical meaning of a negative quantity, the rate of change of a function, the number of roots of a quadratic, and how they change from two real unequal, through two equal, to two imaginary quantities; as a method of approximation to the roots of equations, the ordinary algebraical solution of which is not within the boy's grasp, or as a rough check on roots already obtained, and so forth; but always as the *means*, and not as the *end*.

At no period of the beginner's progress does his future mental agility depend so much on teacher or text-book as it does when he starts "equations." Oh, that a Dictator should arise with authority, who would absolutely and unreservedly condemn to the flames all *beginners'* text-books having in them soul-destroying batches of equations "for practice," and consign to some barren island all teachers who set *beginners* to solve an equation, which has not been obtained, *with or by the class*, from a problem! Equations would then possess a lively interest for a far greater percentage of a class, especially if one were unconventional enough to label a batch of problems "Puzzles." If it is felt that any elementary equation should be worked out as a "type," and half-a-dozen problems of sorts, embodying the idea of this type, cannot be concocted, then either the equation as a general rule is valueless as a *type*, or the teacher—ought to be teaching some other subject.

These mathematical puzzles can be started quite early, with such a "problem" as "A number

as Generalised Arithmetic" (THE SCHOOL WORLD, June,

is less than four times itself by 12; find it." The working to be as follows:

Number = 4 times number − 12

Hence, adding 12 to both sides of the equation—which does not alter the equality— (*Refer to axiom.*)

∴ Number + 12 = 4 times number

∴ 12 = 3 times number

∴ 4 = the number

or the number = 4.

The last step will, if any explanation is necessary, have to be explained as the reverse of multiplication, multiplication itself being only a repeated use of the axiom, "If equals are added to equals, the sums are equal."

The explanations necessary in this simple "puzzle," involving all the elementary rules for equations, may well take up a whole lesson. Especially should the disappearance of the 12 from the right-hand side of the equation and its appearance on the left-hand side *with its sign changed* be shown to depend on the axiom quoted above, and not on some arbitrary RULE. The next lesson might suggest the use of *n*, the initial letter of number, as a sort of mathematical shorthand; and a few similar "puzzles" should be worked out, with the assistance of the class, in words and in symbols, the solutions being set side by side, step by step with one another, on the blackboard, the fact that *n* is a number being insisted on continually. Later, take such a problem as "The sum of two numbers is 17, and their difference 3; find them." Starting with—

Greater number + smaller number = 17

Greater number − smaller number = 3,

suggest *g*, *s* as abbreviations for "greater number" and "smaller number" respectively, and rewrite—

$$g+s=17;\ g-s=3.$$

Work out (i) by substituting $g=s+3$ from the second equation in the first, and find *s*, and hence *g*, and (ii) by adding and subtracting the two equations obtain *g* and *s*. Full explanations must be given, but do not tell the boy he is doing "simultaneous equations." Insist on the problem being properly finished off with a *statement*, such as—

Hence the numbers are 10, 7,

and let the result be verified immediately in *the problem* and not in the equation.

Proceeding in this way, always considering the working out of an equation as the means and not the end, the interest of the class will be stimulated; moreover, the innate fighting spirit of the boy will be aroused by posing an equation as something to be tackled and licked, whilst the master sees fair play. To my mind, there is nothing more vicious and disastrous than showing a boy the method of solving a certain type of equation, and setting him ten or a dozen "like it" for homework. Let each problem or equation or what-not be different, if only in some small detail, from anything done before, so that there is some necessity for thought, and not a possibility of mere mechanical manipulation of unintelligible symbols. I give an e some of the most useful types of equati with a problem from which it is deri

(i) *Problem.* "Find four consecutive numb their sum is six times the least."

Equation. $x+x+1+x+2+x+3=6x$.

(ii) *Problem.* "The sum of two numbers is 5 one and one-sixth of the other together make 1 numbers."

Equation. $\frac{1}{6}l+\frac{1}{6}(55-l)=10$.

(iii) *Problem.* "What is the price of eggs per two more in a shilling's worth lowers the price o dozen?"

Equation. $\frac{144}{x}+2=\frac{144}{x-1}$; multiply across by .

Similar problems, giving two and th simultaneous equations, can easily be cc The following is especially noteworthy, a out a very general difficulty for beginne

(iv) *Problem.* "A man sets out to go fron Derby and back. He walks to Bedford (45 r he obtains a bicycle and cycles the remaining Derby. On returning, he walks as far as miles from Derby), and having sent on his n Derby to Leicester by train, he cycles th 90 miles to London. It takes him 17 hours to Derby, and 14 hours from Derby to Lond rates of walking and cycling."

Equations. $\frac{45}{x}+\frac{75}{y}=17$ . . . . . .

$\frac{30}{x}+\frac{90}{y}=14$ . . . . . .

The usual text-book method is that c ing the variable"; but, besides being it frequently happens that the beginne values obtained for the new variables a tion, and not those of the old varia reciprocals. This is avoided—and the valuable in other ways—by teaching t work out the equations as they stanc variables $\frac{1}{x}$, $\frac{1}{y}$. Thus—

$$45\left(\frac{1}{x}\right)+75\left(\frac{1}{y}\right)=17 \quad . . . . . (1)$$

$$30\left(\frac{1}{x}\right)+90\left(\frac{1}{y}\right)=14 \quad . . . . . (2)$$

Multiply (1) by 6 ∴ $270\left(\frac{1}{x}\right)+450\left(\frac{1}{y}\right.$

Multiply (2) by 5 ∴ $150\left(\frac{1}{x}\right)+450\left(\frac{1}{y}\right.$

$$\therefore\ 120\left(\frac{1}{x}\right)=32$$

$$\therefore\ \frac{1}{x}=\frac{4}{15} \text{ or } x=3\tfrac{3}{4}$$

Hence from (1) $75\left(\frac{1}{y}\right)=17-12=5$

$$\therefore\ \frac{1}{y}=\frac{1}{15} \text{ or } y=15$$

∴ Speed of walking is $3\frac{3}{4}$ miles per hour cycling is 15 miles per hour.

It will be noticed that problem (iii) r quadratic equation. I consider quad

)ut of place in most text-books. It ısisted too strongly that the beginner ıave the slightest idea that a solution exists. The working out of the e should be relegated to its proper irst section of a chapter on "Theory ic Equations," when the equation uoted in the form—

$$ax^2+2bx+c=0.$$

ıeral equation is thus left out of ıd consequently there will be no ere is no earthly reason why the boy proceed straight on to quadratics as has acquired decent facility in symsion by doing a considerable number problems suggested above, *provided itting preparation.* This preparation ist of lessons on factors:
nial factors, &c.
, $(x+a)^2$, $(x-a)^2$, $(x+a)(x-a)$.
leting the square, and writing an exthe difference of two squares.
$x^2+2ax+b$, by "difference of

ıld be merged into a lesson on binomial ɔn, by verifying the product of each ors mentally, and from this the usual ıethod for this type should materialise

$ax^2+2bx+c$, by reduction to the pre-, by the substitution $y=ax$.
it will be found, will rapidly assimilate *ical* examples the fact that—

$17x-35$
$36x-35\times 36$
36
$x-35\times 36$
36
$(x-28)$
36
$5)(36x+28)$
36
$\times\frac{36x+28}{4}$
$5)(9x-7)$

becomes

$$\frac{36x^2+17x-35}{36}=\frac{(36x+?)(36x-?)}{36}$$

(where the numbers required are such that product $=36\times 35$, difference $=17$, greater has a + sign)

$$=\frac{(36x+45)(36x-28)}{36}=(4x+5)(9x-7)$$

ıps what may be called the "pons of algebra is crossed easily and lly. The usual "criss-cross" style ination.

five lessons, (1) will probably have with arithmetical prime factors; (2) ;ether, with illustrations by areas of as an outcome of the determination e of signs" by the method suggested and (5) should be introduced by the of problems leading to quadratics, problem (iii) above. That is to say, in factors and quadratics should go d: the quadratics being obtained from lems will all have real rational roots; ion of literal equations both simple tic, and quadratics having irrational ry roots being *deferred, and also* all other cases of factors being left over until the idea of a "function" is understood, and the Remainder Theorem tackled.

By this method, the boy is taught that each root of an equation corresponds to a linear factor; in those cases where "factors won't come out" easily, his training in reducing trinomials to the difference of two squares leads naturally to the ordinary method of solution by forming the numerical square on the right-hand side of the equation, *and explains the double sign*; there will be no omission in pure quadratics, like $x^2=25$, of the root $x=-5$, if the boy is taught to solve it as—

$$x^2-25=0,\ \therefore\ (x-5)(x+5)=0;$$

and there will never be a possibility of "dividing across by x" and omitting the root $x=0$.

In every case the verification of the result *from the problem* should follow; and the "inadmissible root" should be shown to satisfy *the problem* as well, if the conditions are slightly altered, such as supposing in problem (iii) above that one could pay $-8d.$ a dozen for eggs. A good test for the meaning of the minus sign this!

Of course, there should be graphical illustration of quadratics, not only by plotting

$$y=ax^2+2bx+c,$$

and finding the values of x for which $y=0$, but also by plotting on the same diagram $y=ax^2$ and $y=2bx+c$.

Simultaneous quadratics may thus be introduced, and the intersections of

$$(1)\quad \left.\begin{matrix} ax^2+2hxy+by^2=c \\ y=mx+n \end{matrix}\right\} \text{ and } (2)\quad \left.\begin{matrix} ax^2+2hxy+by^2=c \\ a'x^2+2h'xy+b'y^2=c' \end{matrix}\right\}$$

shown, to give explanations of the number of roots. In (2) it may be shown that the substitution $y=mx$, where m is variable, is equivalent to sweeping out space by a line through the origin rotating through two right-angles, and the values of m found are those for which $y=mx$ cuts both curves at the same point, and hence give from the equation of either of them, by (1), the intersections of the two curves. I strongly oppose the elegant, but useless, solutions by symmetrical expressions of the types $x+y$, $x-y$, xy, and x^2+y^2. Give a boy such a problem as "The sum of two numbers is 8, and the sum of their squares is 40; find them," and ten chances to one you get the solution—

$$x^2+y^2=40,\ x+y=8$$
$$\therefore\ x^2+(8-x)^2=40$$
$$\therefore\ x^2-8x+24=0$$
$$\therefore\ (x-2)(x-6)=0,\ \&c.;$$

or even with the equations $x^2+y^2=25$, $xy=12$ you get

$$x^2(25-x^2)=144$$
$$\therefore\ x^2-25x+144=0$$
$$\therefore\ (x^2-9)(x^2-16)=0$$
$$\text{or } (x-3)(x+3)(x-4)(x+4)=0,\ \&c.$$

And this—besides the way in which it shows up the number of roots—I contend is shorter, more straightforward, and better calculated to enhance the boy's powers of solution than any "dodge"

that was ever invented, no matter how beautifully symmetrical its appearance.

In my opinion, the whole cause of failures, that *do* happen in algebra to really capable boys, is in general no fault of the boy's or of the teaching powers of his master, but of the stereotyped method of the "cut-and-dried-sections" principle on which text-books are usually written. In all cases the whole of the algebraical theory given to a boy in his first year at least should be that which is demanded for and introduced by the solution of problems.

THE PROBLEM OF MORAL TRAINING.[1]

By J. L. Paton, M.A.
High-Master of the Grammar School, Manchester.

OF all the many inquiries to which Prof. Sadler has set his hand there is none larger and at the same time more delicate than this on moral training, none which, if successful, will have such far-reaching results. There is no quest so hard as that in search of the philosopher's stone which will act on character, and it behoves all teachers, therefore, to give the trusty Galahad who undertakes it the best fruit of their experience and their thought to help him in his quest.

The question is as large as education itself, and education is the largest word in our vocabulary; it is not, therefore, possible to do more than touch the fringe of it. The first question suggested is the comparative ethical value of school studies, and at once in seeking to answer it, one finds how intensely interesting is the question that it raises. Speaking for myself the ethical content is of more value than that of science or mathematics or modern literatures, but a boy working willingly and successfully at a scientific curriculum is in a healthier moral state than a boy who is grinding reluctantly and without success at the Latin gerunds. The answer to the question depends on the attitude and aptitude of each individual; that work is ethically best at which a boy works with joy, with the feeling of accomplishment and an open-eyed sense of growth. For this reason, when other conditions are the same, boys trained on the "modern side" are not, as such, inferior in their standard of conduct or less responsive to the higher motive. Again, there is a school which suggests that the pre-eminently ethical subjects are English literature, history, and geography. Without for a moment denying the ethical value of these studies, it ought not to be thought that the value of classics or mathematics is merely intellectual or inferior in ethical value. The very fact that the boy has to wrestle with hardness in these disciplinary subjects creates the strenuous atmosphere in which moral fibre is tested and grows: it is the toughness of these "warp-studies" which gives consistency to the moral ideas suggested by literary or historic subjects and makes them *serviceable*. An illustration from "faked" algebra sums shows how, to produce a pupil has to exert not only his will; he has to set his face agains *inertiae*, against temptation to " within and to seek illegitimate help f No word is said about honesty; th master, the less is the likelihood of ment; but the thing itself, "truth i parts," is learned by practice. Si football-field, with its knocks and the exasperating blindness of the referee field for teaching self-control than the of Bucephalus with the moral pill an smaller virtues of school life—punct racy, neatness; qualities sometimes referred to as "school virtues"—ar great life virtues exemplified and enfo matters. Neatness is in essence a for for work, for duty, and the person to discharged. Accuracy is our duty small matters. Punctuality is one of show thought for other people. T sound petty and insignificant and c by the side of Bucephalus and the which resound through history. B have to learn is that the opportunitie doing great things are few and far b the opportunities for doing good thin strewn upon the beaten path of our Moral practice is the first important moral training.

The second is environment. "To framed into virtue and to grow up fro of nature," as Sir Thomas Browne a child must have all the advantages site, beautiful buildings, bright and decorated rooms, plenty of music a well-planned ordering of praise and wards and punishments, genial and human relationships. By these th lower tendencies of human nature ma by atrophy, the higher tendencies may and fortified with wondrous potency. school, at any rate the day school, p ordinate part to the home; but, inste discouraged by that, it ought to be a teachers to secure more than they d pathy and co-operation of parents by g into living touch with the aims and the school, and the elementary-sch should possess a far greater measure than he does at present over the o conduct of his pupils. The positive in environment are invisible and incalcula the more potent, if the scholars them some part in creating or improvin the ment. Beautiful surroundings are scholars who are not entirely passive, selves help to make their surroundings are on the upward line; for endeavou essence of morality.

The third element in moral traini imparting of moral ideas. Here the naive suggests that something more can be done either (a) through hi

[1] *An abstract of the Presidential Address to the Teachers' Guild, June 15th, 1907.*

(*b*) through Bible instruction, or system of moral lessons on non-nes. With regard to (*a*), history it as history, literature as literature: who hides behind a tree is most The word "definite" in regard to xplosive; the greater the measure of ," the less, as a rule, the measure or charity. The Bible stands in hools unchallenged; it contains all for right living and all that we know "not ourselves." Let it remain d, lest we lose it altogether. As to of direct moral instruction is not as not proved itself efficient. There when direct inculcation of moral e—when a boy goes to a new school; f term, especially if he is leaving; efects are appointed and installed; cial commemoration either national o the school, like Founders' Day, for it, feel it to be right, and are impressed; when some offence has ch needs to be set out in its true eems to be due to moral illusion, or g not only to the individual offender od name of the whole community to ngs. On other occasions we speak individually. But moral instruction subject of curriculum so many times e time-table involves grave risks. kes character a separate subject in-eing beneath and acting through all all school activities. This involves both for teacher and taught. The has bought his handbook for 4½*d.*, off his lessons according to prescrip-nger of thinking that he has done all to his duty of moral training: the o think that, if this hour is specially other hours are not specially moral. g must be a matter of diet, not doses. it is not hard to convey by such mount of fine ideas about morality; rite finished essays on courage, but refore brave because they can talk Many boys have most accurate infor-cricket and football, but their skill et-field (if they ever figure as per-sually in inverse proportion to their king cricket shop.

ese pushful and insistent methods own end: they provoke in the more ds either a whole host of contrariant a sense of boredom and indifference. uggestion is auto-suggestion: in n humour, it spoils all to be too

even if the lesson gets home and elf into action, the lesson taught may ght one for the particular period of a pment. Immature children have not Charles Lamb "in the coxcombry arity" gave away his cake to the pauper *and "walked on in the pride* of an evangelical peacock." Better if he had been allowed to eat at any rate half that cake.

Fifthly, unless thought and emotion are translated into actual endeavour, they do mischief. Hence the subtle danger of much novel-reading or theatre-going, however good. The fine lady weeps over the sorrows of the hero in the theatre and works off her feelings in tears with never a thought for her coachman who freezes in weariness outside. It is not enough to have the idea, to have it well in the focus of the mind and reinforced by ideas of advantage. All this may be true of the boy who lies in bed in the morning after the hour has struck for getting up. What he needs is to be "skinned." To know is not enough, the assent of the mind is not enough; the consent of the will is what is needed for action. Moral lessons must be lived to be understood, must be repeated until they become habits. Passive impressions grow weaker by repetition, active impressions grow stronger. Light comes as the reward of obedience, for, though right thought does not always produce right action, right action always and unerringly produces right thought. Take patriotism, for instance. The love of country does not need to be engendered; it is there to start with; no instructions or directions foster it: love does not grow by precept. We must see our country, feel it, breathe it in, and do something for it.

Lastly, one's feeling on looking over the Moral Instruction League's syllabus is best expressed by the words of a shrewd headmaster, who said on reading a set of flamboyant testimonials, "There is a strong smell here of something left out." The syllabus is on non-theological lines, *i.e.*, in plain English, it shuts out God. It leaves out the ultimate sanction of all ethics and the only power by which conduct can be made ethical. Conscience is the voice of God within; the chief end of man is "to glorify God and enjoy Him for ever." Man without this faith cannot adjust rightly his everyday relationships, whether personal, domestic, or social, without reference to God, any more than he can explain the orbit of the earth and the process of seasons without reference to the sun. Man without this faith is an over-developed ape, a mere caretaker on a globe destined to sterilisation and destruction. Morals break down without religion, as surely as religion breaks down without morals. There never was a more promising movement for moral reform than that of the second century A.D. It had begun before Marcus Aurelius: when he came to lead it and himself delivered to the Senate a series of addresses on morals, it seemed as though the movement were backed by all the resources of the civilised world—wealth, learning, culture, genius, eloquence, the patronage of supreme political power. But it was a failure. Christianity had none of these resources; it had the whole world, civilised and uncivilised, against it, but it carried the day against all odds, and opened a new epoch and a new hope for the human race. Why? Because it had behind it, and beneath it,

and within it, the Omnipotence of the Infinite; because it found the fulcrum for its lever in a world outside and beyond, therefore it had power "to uplift the earth and roll it on another course." This great inspiring idea must be embodied in a person, be "made flesh." Religious men and women are out of all comparison more important than any syllabus of religion, however perfect. The unseen factor that counts for most is the radiation, not *of* personality, but *through* personality, of a higher, holier power not ourselves. When all we have said or done, our cleverness, our academic success is forgotten, "what we were like" will be remembered. A small boy at Rugby under Arnold, asked what he could remember of the Doctor, said: "I remember there was a row in a study, drinking, or something of that sort; it was reported to Arnold, and he went along to stop it. I hid behind the door to watch him as he came back along the passage. I remember the look in his eye. It taught me for the first time what sin was."

Not, therefore, what we say, or even so much what we do, but what we are is the thing that endures—the ultimate lesson which each one of us teaches. If there is in us this quality, which in Arnold was called "moral transparency," then, like Arnold, we shall be backward to speak much about those secret things which rule the heart. It is not needed, and all the great vital processes are secretive. We shall be backward to speak, but not backward to love. Love wins love, and nothing is so educatable as love. Nor has anything so many incalculable opportunities to impart itself: with every greeting, every parting, every chance word we toss each other as we pass, each glance of the eye, it is given or it is withheld. Love radiates into other natures as surely as any physical emanating rays; it is no more to be withstood than any other natural force. It is because our profession gives more chances and channels for it than any other that it is the noblest profession of them all. Magnify the office: it is by magnifying the office that we keep our personality in the right and humble frame. There is always the danger, when one speaks of personality, that folk should think we wish to stamp our personality upon the child. None of us, it is to be hoped, has reached that pitch of self-complacency. The higher our ideal, the more likely are we to know our own littleness and to place our hope and strength in the great Omnipotent who makes for righteousness, the anchor that is within the veil, and that

High Light whereby the world is saved.

The Tutorial Physics. Vol. iii. *A Text-book of Light.* By R. Wallace Stewart. Fourth edition. Revised by J. Satterley. 346 pp. (Clive.) 4*s.* 6*d.*—This edition contains a full treatment of the elements of geometrical optics. A number of simple experiments on the fundamental parts of the subject are described, and numerous *problems are inserted* at the end of each chapter. The *volume can be recommended* for the use of intermediate *students.*

TEACHERS' PENSION

By Fred Charles, B.A.
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I.

THE principle of providing persons engaged in public w nised in all countries; in En the great attractions of the Civil S pension. This principle has been ap countries to all teachers, from the u fessors to the teachers in the kinderga but of this, more later.

Argument appears unnecessary to s work of the teacher is work of nati ance. The saying that "Waterloo the playing fields of Eton" has be proverbial; but it is no less true th trial victories must be won in our el secondary schools. These schools proved and modernised if we are to against the industrial forces of oth America alleges that her industrial won in the manual training schools. trial epoch has called for men sc industrial basis, not educated merely and has extended to them the ma great enterprises, the custody of mechanical movements that go hand the headlong progress of the times

"To those who can answer the c spelled out in large glowing le salaries are large, their influence gre pects for controlling big enterprises the manual training school boy, tr almost every American city, who need. Everyone desires to employ self-reliant, accurate, quick of thoug has big ideas, and, better still, kn to execute them."

If then we are to maintain our pr standard, and much more, if we a our schools so that their products c strip such rivals, we must attract i ing profession more men and be women.

The effect of commercial prosperi the receipts of those men whose wo productive. The schoolmaster is th last to be affected by any increase o provement in commerce. The tea wait for his harvest—not for the s autumn of the year—but for the fru life of his pupils, for many years in flight of which clouds the effect of during which so many causes, so stances exert their influence that it is whether he ever gets truly credited value of his contribution—be it good finished product.

In the nature of things he canno others are, according to the effect o and he is not. In the West Riding, haps as keen on education as any, yearly salary of assistant masters schools is £150 8s. 11d., leaving

ols in the district it is but £116 0s. 6d. salary of headmasters in the same 518 10s. In East Anglia, the average men in 20 schools is £103 6s. And t exceptional districts. For, of 1,150 schools (including 251 men in 10 first-ols), the average is only £135 per

is all: the prospects of the assistant no more attractive than his salary. ix can ever hope to attain to a head-but one in twelve can hope for a head-£300 a year or upwards, while only can ever expect to reach the princely 500 a year! Certainly these figures ed as long ago as 1902. Since then e improved somewhat. In London, e L.C.C., salaries and prospects are hey were; but in the country-schools ment is hardly perceptible.

ntemporary Review the fate of sixty sters was traced. "Four have schools n, and eight have become curates; others are a barrister, a solicitor, a , a professional tenor, a bookmaker), and a grower of tomatoes. Two work and cannot find any; one poor ot himself; twenty-four only remain e, and fifteen have completely dis-aving no trace." On this last class may be thrown by a paragraph an-at "a skilful mathematician and a mean order, formerly headmaster of rammar School, died at the age of n in Bolton Workhouse." A similar orted in the Press at the end of April

ticulars show how sorry a trade teach-offer a sufficient reason for the present qualified men. They further show possible under present conditions for o live cultured lives, moderately free cares, to be examples of cheerfulness nent, family men of the best type, fit for youth in its most impressionable an from a comfortable home with a aining can marry a wife from his own g up a family, and make suitable r it, out of a yearly stipend of ., or even of £150 8s. 11d.

ent then that some financial aid must make the profession of teaching as others; to keep good men from leav-ier occupations; to make it a possible ured folk; to give at least a living o attract those worthy men who are h needed. One way of doing this bly rewarding old teachers, and of d teachers to make way for young establish Pension Schemes.

rnment spends a considerable sum—millions annually—on Army, Navy, rvice pensioners, who after ten years' ntitled to ten-sixtieths of their salary, being added for each additional year's service up to forty. Thus, a Government official, if he has reached the age of sixty, or if he is certified by a medical man to be permanently unfit to perform his duties, retires on as many sixtieths of the salary and emoluments of his office as he has served years; *e.g.*, after forty years' service on two-thirds of his salary.

All the L.C.C. employees receive retirement allowances. In its new scheme the Council proposes, in the event of retirement after ten years' service, either through ill-health or old age (sixty-five), or after sixty on completion of forty years' service, an allowance of one-sixtieth of the official's average salary and emoluments throughout his period of service up to a maximum of forty-sixtieths, provided that in case of retirement through illness no such allowance shall be less than one-third; in the event of retirement before the completion of ten years' service the officer's own contributions with interest at 3 per cent. shall be repaid. Officials are to contribute from 3 to 5 per cent. of their salaries or wages, the amount varying with the age at which they entered the service of the Council, those who enter the service under twenty-five years of age contributing 3 per cent.

If it is the duty of the nation and of the municipality to provide for their employees in this way the duty must have a scope wide enough to include teachers. The present House of Commons in March of last year (1906) agreed that a measure is urgently needed in order that, out of funds provided by taxation, provision can be made for the payment of a pension to all the aged subjects of His Majesty in the United Kingdom. A Departmental Committee of experts, presided over by Sir Edward Hamilton, estimated that in 1901 the population of the United Kingdom over sixty-five years of age was a little over two millions; at five shillings a week the cost would be twenty-six million pounds. Surely a more reasonable plan would be to extend the circle of pensioners to those who, though not directly employed by the Government, are working under its auspices. The Board of Education is a Government Department to which the employers of a large number of teachers are responsible. Surely teachers who have grown old while working in schools under the control of the Board have a better claim to pensions than men who have grown old earning profits for themselves or for private firms, perhaps in a capacity which has had little or no effect on the well-being of the nation.

Yet the new draft scheme for Maidstone Grammar School, issued in 1905, was the first which made provision for allowing the governing body to contribute to the life insurance premiums of the staff, and even then limited the amount to a part not exceeding one-half of such yearly payments.

The Elementary School Teachers Superannuation Act has been in force since 1898. Under it men teachers contribute three pounds a year and women teachers two pounds four shillings. Provision is made for increasing the amount of the

The points of difference between
ised in 1907 and its predecessor
marised as follows:

Preliminary.

FREEHAND; the drawing to be e
duced, instead of merely reduc
MODEL; *is introduced as a subject*
GEOMETRICAL; no change.

Candidates may not be examine
two subjects. In order to "pas
satisfy in any one subject, and, t
tinction," must pass in any two ou

Junior.

FREEHAND; no change.
MODEL; includes *Hexagonal Prism*
Pyramid in addition to objec
years' lists.
GEOMETRICAL; no change.
DESIGN; *instead of being left in ou*
ground of the ornament may

Senior

h is given to model drawing; in the
age by its introduction as a subject
n, in the junior examination by the
e list of objects, and in the senior by
hat the entire group be shaded.
e importance of object drawing can-
timated, either as a foundation for
udy of art or merely as a means of
training; as, moreover, it is a sub-
n be taught on certain well-defined
be examined and marked according
accepted laws and canons of art, it
d with more fairness to both teacher
as a subject for school examination
design," where so much depends
ral aptitude of the boy (much more
del or freehand), and upon the taste
l caprice of the examiner. It is
be regretted that design is in-
list of subjects, as the obvious pre-
the attainment of any skill in de-
ie ability to draw with freedom and
the acquisition of a fund of know-
ural and ornamental forms, to say
me acquaintance with the history of
ie possibilities and limitations of
d so forth. The fulfilment of these
conditions demanding considerably
unities for study and practice than
ot of the average secondary-school
vious that any attempt at original
part must be seriously handicapped
of knowledge and power, and the
cessity, be immature and therefore
.

one fancies that the subject fre-
es itself into a question of "space-
the memorising of certain conven-
and arrangements of leaves and
adapted as occasion may require,
ng the test rather into one of "free-
mory," with the addition of a slight
ur which may give scope for some
skill and taste. The substitution of
" for "design," requiring an ac-
ith the main characteristics of the
s, would provide a far more satis-
of examination, involving a more de-
ctical course of instruction, besides
oy with a store of information likely
te value to him in later life.
owever, a sufficient choice of subject
ty of latitude in the selection of the
ee, without including design, un-
e be unduly limited by the overlap-
subjects; for example, a boy in the
who is taking literature, and who
r himself in three drawing subjects,
choice but to take model, freehand,
In view of this occasional overlap-
l study of the examination time-table
before the list of subjects is finally

w to the consideration of the sylla-
il, we find, as regards the model drawing, that in all three sections, geometrical models are required, such as those used in the Board of Education examinations; with the addition in the senior and junior sections of one or more common objects. These combinations should present little difficulty to boys who, by the time they are ready to take these examinations, will doubtless have been drawing from models and objects for some considerable time. There are one or two points, however, on which it is necessary to lay great stress, namely, the necessity for making the drawing fill the paper, and the importance of observing the relative proportion of each object in the group to the remaining objects and to the group itself. Every teacher must be familiar with the overpowering and almost universal tendency to make a small and "pretty" drawing, and one can hardly take up an examiner's report without coming across some comment on the frequency of this occurrence. This tendency can be corrected to a great extent by the practice of first fixing the extreme width of the group (which is generally determined, in the orthodox examination group, by the outer corners of the drawing-board) close to the edges of the paper.

The fault of disproportion is largely due to the habit of drawing the group "piece-meal," concentrating the attention solely on the object under immediate consideration and ignoring entirely its relation to the group as a whole. This can only be checked by insisting on a frequent comparison of the drawing with the group, with the paper held vertically at arm's length, and by a more careful regard being paid to the shape and size of the *spaces* that occur *between* the various objects in the group, and to the amount of overlapping of one object by another; in short, by the consideration of a group as a collection of *masses* and *planes* rather than as a combination of *lines*.

Of the multitude of text-books and "guides" in connection with this branch of drawing, one which has recently come to my notice commends itself on account of the vigour and novelty with which the author presents the familiar rules, and the ingenious way in which he produces corroborative evidence in the shape of photographs, which emphasise and confirm these principles in a most convincing manner. To those who feel the need of such guidance this book ("Object Drawing," by E. A. Branch: Ralph, Holland and Co., 2*s.* 6*d.*) may be strongly recommended.

The syllabus for FREEHAND is again on the familiar lines of the Board of Education examinations, the candidate being required to make a reduced or enlarged copy of a piece of ornament, generally in low relief. Here again one should be careful to guard against the production of neat and highly finished drawings with a total disregard for proportion and spacing; the washing-in of a flat tint of colour over either the background or the ornament will be found a ready and convincing method of correcting these errors. There are many excellent sets of examples to be obtained for practice in this subject; the "Photo-Relievo"

series issued by Messrs. Bacon and Co. consists of well-selected examples of good ornament, which are admirably lighted and reproduced; Messrs. Ralph, Holland and Co. also publish a book on the subject by Mr. E. A. Branch, containing a useful collection of copies, together with suggestive remarks on methods and treatment.

GEOMETRICAL DRAWING involves an acquaintance with the elementary principles of plane geometry, together with a few exercises in drawing plans and elevations of the simpler geometrical solids. As the examination is largely a test of neatness of work and accuracy of construction, it is advisable to insist on a high standard in both respects from the beginning. In this connection a trustworthy compass and an accurate ruler are essentially necessary; it behoves the teacher, therefore, to keep a sharp eye on the abortions in the shape of "patent" compasses which are often adopted for the sake of novelty or cheapness, but which are frequently a delusion and a snare, and prove a serious handicap to the student.

Any of the well-known text-books on geometry, such as Spanton's "Geometrical Drawing and Design" (Macmillan), Carrol's "Practical Geometry" (Burns and Oates), Gill's "Imperial Geometry," or Morris's "Geometrical Drawing" (Longmans), amply cover the ground required for this examination.

The PERSPECTIVE examination deals principally with the representation of solids resting on the ground plane, or involving the occasional use of a vertical plane, perpendicular to, or inclined to the picture plane. Among many other standard works, the subject is dealt with in a very simple and practical manner in "Linear Perspective," Parts I. and II., by John Carroll (Bacon, 2*s.* 6*d.* each part).

With regard to the MEMORY DRAWING for seniors (why not, by the way, for juniors also?—it is a valuable and interesting branch of study, which cannot be commenced too soon), no list is given, but presumably the object selected will be of a well-known, everyday variety.

A usual course of procedure adopted in the study of this subject is for the article selected to be exhibited for a few minutes, then to be removed and drawn from recollection. A better plan, in my opinion, is the one recommended by Dr. Kirschensteiner, of Munich, whereby the object is announced, and drawn *from memory first*; the drawing is then corroborated or corrected by reference to the object, which is then removed and the drawing done again from memory. Whichever method be adopted, constant practice and rapid execution are the great essentials.

Should it be found desirable to take DESIGN as a class subject, "Nature Drawing and Design," by F. Steel (Bacon), will be found of great assistance. It contains an infinite variety of floral forms adapted to fill almost every conceivable space, together with valuable suggestions for the construction and treatment of designs, such as are required for the purposes of this examination.

The report of the examiners in drawing for the Cambridge Local examinations of 1906, draws attention very forcibly valence of the faults of disproportion i and freehand drawing, to which I referred. The following extracts fro will show how general are the grou plaint: "There were, however, mar otherwise satisfactory, which show candidates had given but little the general proportions of the figur drawings, in themselves well balance were quite unlike the copy, the propo whole having been entirely changed ary, Freehand).

"The prevailing faults were du preliminary sketching, and inaccur senting the proportion and balance (Junior, Freehand).

"It was evident, however, that dates had received little or no tra drawing of 'groups' of models. . sequently showed small capacity f intelligent representation of the po models in relation to each other" (Ju

"The inferior drawings displaye over-elaborated details and bad pro (Senior, Freehand).

"Often, however, the proportio jects were incorrectly represented, a themselves were drawn in impossibl relation to one another" (Senior,

A striking fact in connection wit the extremely small proportion (about 50 per cent. on the average) the examiners." That this is not du tionally high standard of merit be by the examiners is evidenced by reproduced of drawings which hav "Pass" standard; these tend to examiners have, if anything, erre of leniency. Making all allowanc that a boy who is clever at drawing be precluded from offering himself by the overlapping of other subject who is not clever may often be con it in order to make up his number o is bound to admit that, if the resul aminations may be taken as a crit room for much improvement and teaching of drawing in many secon

One is pleased to note, in passing which is placed on the value of " ing." "The importance of this st overrated, and, where time for draw it might supplant other less useful

The report on the design examin with the examples illustrated in t sion, would appear to bear out my to the unsuitability of this subject f ing in schools. Apart entirely from examination results, this report m with advantage by all teachers of d learn nothing new from the various suggestions, they will, at any ra food for reflection.

RN VIEWS CONCERNING ELECTROLYSIS.

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obably be easier to understand the views concerning electrolysis if we uire why the older notions have been Consider the apparently simple case s of a copper sulphate solution be- des of metallic copper. A very small e force is all that is necessary. posited on the cathode and an equal e metal is dissolved from the anode, of the solution therefore remaining his equality is difficult to demon- by the constancy of the strength on, for the surface of the anode is the black oxide falls off to some

ss may be explained completely on pothesis that the molecules of copper inally lying at random take up an ngement on the application of an such an arrangement the molecules with their positive portions towards e electrode. The copper atom negative electrode is deposited SO_4 group nearest the anode unites copper atom obtained from the elec- e intervening molecules change part- e chain. Except that in each mole- s this change of partners between nothing else happens, and the nsequently exhibits no visible action. lyte in every case showed no change, s's hypothesis would always be suffi-

lustrates his hypothesis by consider- of water, and concludes that if a ent could be maintained in water g electrodes, then all the water ch should lie along the path of the d instantaneously decompose and the ine and, consequently, though con- city, the liquid would always remain

tion of this view was proposed by suggested that some of the salt the solution were dissociated into negative constituents, which under of the applied E.M.F. moved towards nd anode respectively. These ions nes move as far as the electrodes, or, hand, collide with fresh molecules, them to decompose, produce more effect of the electric force would thus notion of free ions towards the elec- posite directions. The proportion molecules was assumed to be small. e electrolysis of copper sulphate be certain ways, it is possible to detect the solution itself. The simplest use a vertical glass tube, a foot or so in length, and to place the electrodes horizontally and two or three inches apart. The cathode should be uppermost, and to permit of free diffusion, it should be perforated with a series of holes. When two or three cells are used it is found, after a while, that the upper half of the liquid becomes lighter and the lower half becomes darker in colour. This result shows that the copper is taken from the solution round the cathode, while that dissolved from the anode cannot diffuse upwards fast enough to replace it. No such change in colour is noticed if the tube be placed horizontally.

In order to explain the process of electrolysis it is necessary, therefore, not only to measure the quantities of ions set free at the electrodes, but to attend carefully to the condition of the liquid itself. The earlier explanations of the change of strength of the electrolyte near the electrodes were arrived at by asserting that the cation was derived solely from the liquid around the cathode. Hittorf showed that this assertion was unfounded, and by his classical experiments first demonstrated the actual movement through the liquid of both ions, in opposite directions and with different velocities.

As an example of Hittorf's work, one experiment in which copper sulphate was electrolysed may be mentioned. The electrolytic cell made of glass was divided into three parts by porous diaphragms. One part contained the anode, another the cathode, and the third simply the liquid. Each portion of the cell was provided with an opening which could be closed by a glass stopper. The current employed was measured by the quantity of silver deposited in a voltameter. Each cell was filled to the same height with solution of known strength, and at the close of the experiment the strength of that in the division of the cell containing the cathode was again determined. From the quantity of silver deposited in the voltameter the copper deposited on the cathode was estimated to be 0·5918 gram. The solution in the cathode division was found to have lost 0·4142 gram of copper. The difference between these two quantities, namely, 0·1776 gram, represents the weight of copper which had travelled into the cathode cell during the passage of the current. That is, 30 per cent. of the reduced copper had "migrated" towards the cathode. This result is known as the migration ratio of copper in copper sulphate solution, and is stated as 0·3.

Further experiments by Hittorf decided that this migration ratio for copper increased with dilution of the electrolyte to a maximum which remained constant for further dilution. It was also shown that the ratio was independent of the current strength used. A similar series of experiments with silver nitrate led to corresponding results, the limiting value of the migration ratio for silver being 47·5 per cent.

The current through the electrolyte is conveyed partly by the cations, partly by the anions, and since, according to Faraday's laws, we may define

current as measured by the number of equivalents of either cation or anion set free, we may say that out of one unit of current passing through copper sulphate solution, 0·3 of the current is conveyed by the copper cations and 0·7 by the anions in the solution.

This may be further explained by considering the changes in the three divisions of Hittorf's electrolytic cell, during the passage of one unit of current—that which decomposes one equivalent of the copper sulphate. In the cathode division, one equivalent of copper is deposited, and 0·3 equivalent arrives from the middle division. In the anode division, one equivalent of copper passes into solution, and 0·3 equivalent migrates into the middle division. Substituting 0·7 for the migration ratio of the anion SO_4 in these statements, and remembering the opposite direction of the movement of the anion, the results are seen to be:

(1) No change in the middle division.

(2) A loss of 0·7 equivalent of $CuSO_4$ in the cathode division.

(3) A gain of 0·7 equivalent of $CuSO_4$ in the anode division.

Hittorf's numbers give the relative velocities of the ions. Now, the actual velocities can be obtained if their sum and ratios are known. The sum is obtained by measuring the rate at which electricity is conveyed by the electrolyte; that is, by measuring the specific conductivity of the liquids. Then we have the equations:

Sum of velocities × charge on 1 ion × number of ions = current conveyed.

Also current = E.M.F. applied/resistance of electrolyte.

The specific conductivity divided by the number of gram equivalents of the electrolyte per c.c. is called the equivalent conductivity, and in the case of each salt this quantity was found to increase with further dilution until a maximum was reached, beyond which the equivalent conductivity was constant. The migration ratios give the proportion in which the current is divided by the anions and cations. If the equivalent conductivity be then divided in the same ratio, the ionic conductivities are obtained; and, since the charge carried by one equivalent is 96,600 coulombs, the conductivity of any particular ion divided by this number gives its velocity per second under a unit difference of potential per unit length.

It has also been found that the conductivities of salts may be approximately ascertained by adding together those of their ions found by means of experiments with other compounds containing these same ions. The meaning of the value of the ionic velocity is that it expresses either the average velocity of any single ion throughout a long period, during which it may sometimes even be at rest, or the average velocity of one ion deduced from that of all the ions concerned free or combined.

The modern theory of electrolysis is based on the idea of a more or less complete separation of an electrolytic solution into its constituent ions before any E.M.F. is applied. A salt being dissolved in a liquid is by the act of sc ciated more or less completely into it ions. In fact, the electrolytic cond liquid is looked upon as evidence of having already taken place. Experin support the hypothesis of dissociatio very dilute solutions. The steps w this hypothesis of Arrhenius may he summarised. Let a salt solution be vessel provided with a pressure gaug with a membrane, through which the pass, but which allows water to do s the vessel be placed in water. The sc served to draw water to itself, an indicates a resulting rise of pressu crease of pressure in the containi known as the osmotic pressure of It may amount to several atmospher value which varies with the salt centration. The difficulty of the arises from the necessity of forming meable membrane suitable to the s examined. In experiments with ca example, the membrane is made of cyanide, and the pressure observed i a one per cent. solution varied, acc temperature, from 0·6 to 0·7 atmosp

Indirect methods are available f osmotic pressure, and these depend u ciple that the pressure is a measure done in separating the salt from the amples of the methods are observatic pressure, solubilities of two substa in the same solvent, and lowering of point. Osmotic pressure depends tration in an analogous manner to t pressure and volume in a gas (B The increase of osmotic pressure temperature in a solution follows t as that of rise of pressure in a ga conditions (Gay-Lussac's Law). blance between osmotic pressure in tions and gaseous pressure, expla kinetic theory as due to separate pa close as to suggest that this pressur is similarly due to the particles of substance filling the solvent. Thi has been confirmed by calculations v the osmotic pressure of sugar solu hypothesis that it is the particles of occupying the space filled by the solv the pressure. These calculations are fact that a certain number of grams *e.g.*, filling a certain volume produ pressure. Success has also attended made to ascertain the lowering of point on the same hypothesis.

There seems little reason to dou that the constitution of solutions clos that of gases. But in the case of bases, and salts dissolved in water, osmotic pressure is greater than th from their molecular weights accordi laws. It is concluded that with thes complete dissociation occurs on soluti

king up into the parts which have been
as. Thus, in the case of NaCl, if the
essure be calculated on the assumption
roduced by molecules of NaCl behaving
tion as gaseous particles occupying the
e, the value found is smaller than that
experiment. The actual value corre-
re nearly to that calculated on the hypo-
t each molecule dissociates into the
ons of Na and Cl. This dissociation is
y to become complete and remain so
reason of the large space occupied by
ules, the ions have a much smaller
coming into contact with one another.
ciation is considered to be complete at
ition.

ociation, γ, is the proportion of mole-
h are broken up into smaller ones or
t is, out of 100 molecules, 100γ are
nto two or more (n) ions. In the case
ach molecule may yield one ion of Na
f Cl. Here $n=2$. If γ molecules de-
he total number, starting with 100, is
e new molecules) $+100-100\gamma$ (the un-
molecules). Thus, the number of
present increases from 100 to $100\gamma n+$
or $100\{1+(n-1)\gamma\}$.

ie proportional increase $1+(n-1)\gamma/1$
he important quantity, and gives the
e observed osmotic pressure to that cal-
the assumption that no ionisation takes
nolecules behaving as ordinary gaseous

ent shows that the osmotic pressure
ctivity of solutions both increase with
limiting values, and the values for the
onisation calculated from each increase
one another. If $\Lambda\infty$ is the conduc-
nfinite dilution, *i.e.*, the maximum con-
and Λ that observed in any particular
ion, the degree of ionisation $\gamma=\Lambda/\Lambda\infty$.
, if P_0 is the osmotic pressure calcu-
rding to the gas laws, and P that
the degree of ionisation $\gamma=\dfrac{P-P_0}{(n-1)P_0}$.
ase of a badly conducting liquid, the
onisation is very small. In 1 gram of
example, it has been estimated that
gram is dissociated. This gives about
ed atoms of hydrogen, and an equal
hydroxyl ions.

n in gases may be said to have been
established experimentally, and its
by several different methods demon-
Negatively charged particles having a
thousand times smaller than that of a
atom are referred to as electrons. To
atom negatively means to increase its
his quantity, and to charge an atom
means a corresponding decrease in
is change in mass is looked upon as
at least partially, the possibility of
oride dissociating in solution, not into
oms, but into those of slightly different
h different properties known as sodions
and chlorions. In an electrolytic cell the cations travel to the cathode and yield their charges to the electrode; the anions in the same way discharge on the anode. As an illustration we may consider the electrolysis of copper sulphate between copper plates. The ions present are derived both from the water and from the salt, thus:

$$H_2O=\overset{+}{H}+\overset{-}{O}H$$
$$CuSO_4=\overset{++}{Cu}+\overset{=}{SO_4}$$

in which the charges are represented in kind and amount by the signs over the symbols.

At the anode, copper ions are formed, hydroxyl ions and sulphions are discharged. The first of these processes means copper dissolving from the electrode, the second implies oxidation of the copper plate (the blackening noticed in the experiment) and the last a production of fresh sulphate of copper. At the cathode, copper ions are discharged mostly from $\overset{++}{Cu}$ to Cu, but partially to $\overset{+}{Cu}$. This means some production of cuprous sulphate. Further, hydrogen is discharged if the current strength is large, and the strength of the solution not kept up around the cathode by stirring.

The actual processes occurring at an electrode depend thus to some extent upon the circumstances of the experiment, those taking place which can do so most easily. An illustration of this may be given by considering the electrolysis of sulphuric acid between platinum plates. In very dilute acid the ions are:

$$H_2O=\overset{+}{H}+\overset{-}{O}H$$
$$H_2SO_4=\overset{+}{H}+\overset{+}{H}+\overset{=}{SO_4}.$$

Here the acid is completely dissociated, and oxygen and hydrogen appear at the electrodes.

In the case of stronger acid the dissociation is less complete:

$$H_2SO_4=\overset{+}{H}+\overset{-}{H}SO_4.$$

The HSO_4 ions, having given up their charges and become neutral, combine together to form persulphuric acid.

$$2\overset{-}{H}SO_4=2O+H_2S_2O_8.$$

In the case of 50 to 60 per cent. acid, electrolysis produces very little oxygen, but much persulphuric acid. But even in dilute solutions some of the new acid is formed, and this accounts, at least partly, for the volume of oxygen set free being slightly less than one-half that of the hydrogen.

First Stage Human Physiology. By Dr. G. Norman Meachen. x+240 pp. (Clive.) 2*s*.—Designed especially to meet the requirements of candidates for the examination in physiology of the Board of Education, Dr. Meachen's little book is so clearly written that it ought to appeal to more general readers also. The instructions for simple practical work, and the easily copied diagrams, will prove of considerable value to students.

THE TEACHING OF ENGLISH IN PUBLIC SCHOOLS.[1]

By J. H. FOWLER, M.A.
Clifton College.

BREAKING away early from classical traditions and set forms, fostered by no National Academy of Letters, directed by no systematic or authoritative criticism, English literature—in depth and range probably the greatest literature in the world—has grown up in the same absent-minded way in which the British Empire is said to have grown. For many generations even the greatest Englishmen persistently undervalued their own literature. Though Addison taught his countrymen to admire Milton, he was not fully aware of Milton's greatness; though Johnson wrote of Shakespeare with splendid acumen, he was far from understanding Shakespeare's unique position as it is now realised. Even now, when everyone is prepared to admit theoretically the importance of English literature, it is only fighting its way slowly to an assured place in the curriculum of English schools. Thirty-seven years ago Sir John Seeley—the same whose historical and political writings did more than those of any other man to awaken in Englishmen a sense of the significance of the expansion of England overseas—published an eloquent plea for the study of the English language and literature in English schools. "Everywhere but in England, I imagine, the native language makes a prominent part of the educational course." When these words were written in 1870, the education in English secondary schools, both of the higher and the lower grades, both public and private, was still preponderatingly classical. There have been great changes since then, but they have hardly been in the direction desired by Prof. Seeley. In all the public schools, with the exception of two or three of the most conservative, the conflict of studies has resulted in the institution of a "modern side" parallel to the "classical side"; in many there is an "army side" which is separate from the classical and modern sides; and in some there is opportunity for a good many varieties of specialisation at the top of the school. On the classical sides practice varies a good deal as to the teaching of English. Many classical schoolmasters are hostile to English teaching, on the grounds that—

(1) The elements of grammar can best be taught through an inflected ancient language.

(2) Every lesson in classical translation and composition is, or should be, a lesson in English.

(3) The study of the classical forms of literature should come before the study of the more complex and irregular modern forms.

(4) Classical training, if it is to be thorough, requires all the time that is available for literary subjects.

The practice at Clifton College probably represents rather more than the average time allowed to English on classical sides. One h is here given to English literature classical forms, and one hour to hist history being taken in one term of th ancient history in the other two. lessons are given in the lowest forms of the parts of speech. On the mode hours a week are allowed for Engl throughout the school, five hours in forms where English grammar is tau higher forms on the modern side a c ber of boys take extra English as ar to science. These boys give eight h in school to English subjects. Thr school, on both classical and modern lish essays are set fortnightly to be of school. In the sixth form great has been attached to the essays for The subjects for the whole term ar at the beginning of each term, and a are looked over with the boys indivic

In schools below the rank of th public schools—in the secondary sch which now are subject to the Board —the changes of the last thirty ye tirely dethroned the "grand old fortil lum" from its long-established sup have substituted an education whicl in view the practical needs of l science, mathematics, commercial modern languages taught more and r point of view of practical utility, and of technical instruction, have all cl creased share of attention. That E ture has been taught at all has bee to the requirements of certain public which have largely determined the schools of this type—the Oxford an Local Examinations, the Oxford an Schools Examination Board, the ex the College of Preceptors, and the Examination of London University characteristic defect of the English system—the study of elaborately ani —has pervaded the English literatu these schools. But lately, it is ple two important changes have been should be fruitful of good results London University has devised a English examination which can crammed out of text-books, and v the enlargement of the pupil's vocal strengthening of his powers of e power of intelligent reading. S Board of Education has made a mos attempt to graduate the English rea between the ages of twelve and si improve the practice of English co

The present state of things with teaching of English in English sec may therefore be summarised as fo

(1) In the great public schools number of boys are still receiving which is mainly literary. In some o very little English literature is r

[1] Contributed to the Federal Conference on Education, and reprinted, with permission, from *The Federal Magazine*, May 15th, 1907.

ish composition is practised. It may admitted that those boys who carry on ical studies to the university do not e, both because their training in the ssics is an admirable preparation for eading of modern European literature, e they indirectly learn the use of their age in the practice of translation and n. On the other hand, those boys who ursue their classical studies at the age r seventeen have probably gained little mental discipline from their classics; nissed that foundation of a literary and ucation which could have been laid in cted English studies.

he modern sides of the great public is generally recognised that the only preventing the materialisation of d of continuing to the modern public- any part of the humanism which has best feature of English public-school the intellectual side, lies in the study literature. Fortunately the modern hese schools have had among their any men who have been conspicuous nowledge and love of English litera- ould be impossible to over-praise the and especially the stimulating qualities, hing in particular cases. But probably w modern sides on which the study of t has been organised on any general n any case the schools have developed ms independently with little knowledge is being done elsewhere. It will be one s of the lately-formed English Associa- ng them into communication with each to enable each school to gain from the of the rest.

e other secondary schools the prevail- f education is less and less a literary necessity, I conceive, is more vital for of English education than the necessity that every boy and every girl who ugh these schools shall come, through ermined English studies, under that luence which can best be given through The present position of English these schools is, as the last Board of report bears emphatic testimony, far factory. At the same time, the most ture of the situation is the anxiety of to bring about an improvement.

elopment of English teaching in our hools, as I have sketched it, is still at tary a stage that it may perhaps be olonial schools have little to learn from e sketch may be of use if it explains why comparatively little has yet been e right direction. There is no real discouragement. A new study starts advantage of traditional methods of It was natural that at first there should nts in wrong directions, and especially w study should be unduly influenced by *ore appropriate to the old* classical studies. If we can agree as to the aims to be kept in view in the development of English teaching, and are agreed about its importance—and I anticipate a large measure of agreement on both points—I look forward to an immense advance within the next few years. I will venture to suggest in conclusion some of the ways in which we may look for improvement.

(1) We shall take more pains to graduate carefully the English literature read in school, and to see that nothing is read which is wholly beyond the pupil's comprehension, and at the same time that nothing is read which is not really literature. The scheme of the Board of Education already mentioned is a valuable step in the right direction.

(2) As our chief aim is to be the foundation of a love of reading and a taste for the best literature in after-life, rather than the preparation for later specialising in English literature as a university subject, we shall aim at more rapid and continuous reading than has been commonly practised in this study hitherto. The minute study of a single poem or play may profitably be undertaken from time to time by the higher forms of a school; but with the higher forms generally, and with lower forms almost always, we should aim at reading English literature at a rate sufficiently rapid to give the form a *whole impression* of the book they are reading. The practice of devoting a whole year to a single play of Shakespeare, common in many English schools, though not in the public schools, seems to me radically unsound. The high authority of Prof. Raleigh, in his new book on Shakespeare, may be quoted in favour of the impression that is got by " alert and rapid " reading, and by that only.

(3) We shall recognise that the best fruits of this study cannot be tested by examination papers —certainly not by the prevailing type of examination paper, with its literary questions which can be answered by rote out of an introduction, and its grammatical, philological, historical, or " general information " questions which can be answered out of the notes. If we are to test our teaching in this subject at all—and it is only right that we should wish to do so—we shall rely rather on the test that can be furnished by English composition, taught as the art of *self-expression.* For

(4) much may be done for the teaching of English composition in this direction. Here, too, we shall take pains to graduate subjects according to the age and experience and capacity of our pupils. We shall neither lose sight of the simple but invaluable practical ends that may be served by composition—the learning to write a business letter lucidly, concisely, courteously; the learning to make an abstract of an argument, to sum up a case, to describe something seen—nor yet of more ambitious aims, such as the acquisition of a large and flexible English vocabulary, the acquisition of the rudiments of a style and a literary sense.

(5) We shall do increasingly more to correlate the study of composition with the study of literature and the study of history, but also with every

subject that is taught in our schools. It is not too much to say that every lesson ought to be a lesson in English. If only we schoolmasters were properly proud of our heritage—if only we realised how splendid a boast it is to "speak the tongue that Shakespeare spake"—this English question would speedily settle itself in our schools. For every master would be careful of the example he set to his pupils and intolerant, in himself as well as in them, of the slovenly and slipshod speech that is a wanton degradation of our noble mother-tongue; and few things, I think, would lie nearer to his heart than the desire that in our national literature the coming generation might find a link to bind them to all that was most precious in the past, an inspiration to the loftiest patriotism, a constant source of purifying and elevating thoughts and affections.

THE PRELIMINARY EDUCATION OF ELEMENTARY SCHOOL TEACHERS.[1]

III. From the Point of View of the Pupil Teacher Centre.

By H. W. Duffin,
Headmaster, Pupil Teacher Centre, Norwich.

IN the two able articles that appeared last month upon this subject, the question was considered from the point of view of the secondary school and that of the training college, and in neither case did the writer give the new regulations his blessing. Mr. Elford fears that the proposals "will in no way meet the difficulties, though they may supply to a very limited extent an additional source of teachers." Coming from the pen of the headmaster of a large secondary school, who has evidently had actual experience of the difficulties in question, these words would not appear to indicate that the millennium is to be expected in the immediate future. Indeed, Mr. Elford's article very clearly shows that even from the point of view of the schools in the interests of which the new regulations play so important a part there are grave doubts as to the issue. He fears that "but few will take advantage of the new facilities," mainly because of the inadequate remuneration offered during the term of bursarship.

Mr. Jarvis, who considers the educational equipment of the new bursar in its relationship to the requirements of the training colleges, and quite clearly has an intimate acquaintance with the established machinery for the supply of elementary-school teachers, comes to the conclusion, after a very impartial examination into the prospective working of the new scheme, that our teachers may become "slightly less efficient." From this conclusion he certainly derives some hope that the diminished efficiency of the teachers may be but a blessing in disguise to education, and all for the good of the human boy; a paradox upon which the opinion of headmasters of elementary schools, who after all should perhaps be heard *upon this matter*, would be of some interest.

[1] *Two articles on this subject* appeared in THE SCHOOL WORLD June, 1907.

Now from both these points of view been assumed that, while the new regula not likely to be immediately successful, th because they do not go far enough, and they still leave difficulties in the way of t ing of the secondary schools. The fun questions of whether the pupil-teacher s right or wrong, or whether under the conditions it has been given a fair t ignored, and it is tacitly taken for gra the policy of the Board of Education of d the pupil teacher is a good one. The o of the argument, however, has an undoub to be heard.

The main characteristic of the system Board of Education seems bent upon abo the idea that a young person who inten come an elementary-school teacher sho the age of sixteen, begin to get an insigh realities of his future profession. For pose the half-time system has been devis which the pupil teacher has spent half c years' period of engagement in attenda elementary school, where, under super has watched the methods of teaching, a some tentative part therein for the pu training. The rest of the time has been many large towns, in pupil-teacher ce have been equipped, staffed, and orga the special purpose, and where he ha his studies upon lines laid down by the Education. Thus his academic educ been carried on side by side with his in professional training.

Four years ago serious objections m been raised to this dual scheme. For t of the pupil teachers came straight elementary school, and it was hardly p them to attain a good standard of gene tion during their apprenticeship. A curriculum, and over-pressure at that, common result, and one that the Board tion very properly objected to. But *ago* the Board issued regulations w resulted in a very different state of thi cept in rural districts, where the condit of course, always present difficulties, pupil teachers attend a secondary sc the age of sixteen, when, after passing ing examination, they are drafted to teacher centre. Taking this second course into account, the Board has inc improved the curriculum, until the F Certificate examination at the end of teacher period is now almost on a le university matriculation examination standard of difficulty, while it is co wider in scope.

Now the centres are demonstrably a pare the pupil teachers for this, and students for the university examina have been specially designed for the the half-time system. They are gener now with teachers possessing uni equivalent qualifications, and what is e

the necessary experience in the work. esis and gradual development alike are Board of Education, at whose instance hers have been for years devoting their olely to them. Only for the last two e the regulations been fundamentally hen suddenly, before time has been show even the first products of the im- nditions, the whole scheme is threatened lution!

re two distinguishing features in the m. One is the insistence upon a con- lucation at a secondary school up to the venteen or eighteen (where they may the corporate life of the school with f nine or ten); the second, the corollary that no experience in an elementary all up to that age have been gained. rsar" is to be kept entirely free from ith the system of teaching to which he is to devote his life, and the question of the work is carefully to be kept from itself. True, the head teacher of the school must report that he is "not " to become an elementary-school ut from what we know of the minimum nts in the past we may easily imagine satisfy this doubly negative qualifica-

is this second principle that practical know something about. In no other is it obligatory to guard so carefully ontact with one's future work and en- . Apprentices and pupils are articled ofessions, and are allowed to get into h the business before seventeen or eigh- is true there are to be "student " but these will not be permitted to he atmosphere of an elementary school same age, and no doubt will, in many come the relatively inferior teachers of . The others will go straight from the school into a training college (at the of seventeen!), whence they will emerge s later, to come for the first time into rters with one of the most difficult of all at of teaching large classes of young n such a way as to satisfy the complex nts of modern times, *for a living*.

estion of fitness or aptitude is crucial. the bursar goes to college or becomes a acher, the time must arrive when he will the fire. Headmasters will not be pre- in his favour when they have to give him every week for his studies; and when n he proves, as he must in many cases, ing in the qualities needed for the work, speak out plainly and emphatically, if is sake, certainly for the sake of their This is an aspect of the question that appeal strongly to the head teachers. them are perhaps inclined to view their hers as troublesome rather than helpful; Board of Education *and the local educa- orities see that the training* is given only in the best schools and under the best head teachers this danger will cease. At any rate the pupil teacher does not count on the staff, while the student teacher will do so, and any difficulty that is now experienced will then be accentuated.

But to parents it is a still more important question. For a boy or girl of eighteen condemned as unfit by the head teacher of a school it will be most difficult to find another career. In other words, only the well-to-do parent will be able to afford the experiment of allowing his child to take up a bursarship of £10 for a year. Few parents who can afford to make it will be inclined to do so when they consider the average salary of elementary-school teachers, and especially the Government superannuation scheme, which shows the parliamentary estimate of the profession which the bursar must declare his *bona fide* intention to follow.

Hence it is clear that local education authorities may expect but a feeble supply from this new source. The recognition of this fact has induced the Board to offer it only as an optional alternative to the pupil-teacher system, though many baits in the shape of grants are held out to tempt the authorities to accept it at once. It would, however, not be fair for the authorities to tempt parents, by an immediate monetary consideration in the shape of an increased bursarship, to embark upon an experiment that must inevitably in many cases result in disaster.

In conclusion, those who are connected with pupil-teacher centres have nothing but approbation for the Board's desire to improve the education of future teachers. But they believe the centres, under the new conditions, are quite capable of doing this work; they believe the attempt to divorce the student entirely from contact with his life's work, without regard to his fitness for it, to be a grave error; and to uproot a system before giving it a fair trial to be not only an act of folly, but also of injustice to those institutions that have been established, fostered, and regulated by the very Board that now is seeking their destruction.

THE USE AND ABUSE OF THE FAIRY TALE IN THE TEACHING OF LITERATURE.[1]

By C. L. Thomson.

IN one of Wordsworth's best-known sonnets, the poet, after speaking of the waste of time occasioned by trivial gossip, contrasts the interests of the "daily world's true worldlings" with those of children, whom he considers "more blest and powerful" because they live so much in the world of imagination. Wordsworth was apt to idealise the period of childhood, and what he says of it must be accepted with reservations; yet it is, of course, true that children have an extraordinary power of surrounding with a glamour of romance whatever material is at their hand. Since this faculty is so important a means

[1] A paper read at the Federal Conference on Education, May 29th, 1907.

of happiness to its possessor, and is found so much less frequently in adult life, it is worth while giving a good deal of attention to its cultivation and preservation.

Yet it is not so very long ago that fairy tales and romances, the proper food for the imagination of childhood, were looked at askance by educationists, and kept as something apart from school, fit only for hours of recreation. The stories in our reading books were exclusively instructive or didactic, and had very little literary value, either of subject matter or form. About ten years ago, however, a reaction set in. The ideas of German educationists began to reach England, and a new type of reading book, in which the fairy tale played a large part, came into use. The use of the fairy tale or romance in education we may now regard as an accomplished fact. What we have to consider at present is how it may be best used in forming a taste for good literature. The subject deserves some consideration, because in our enthusiasm for a new idea we have not always shown discrimination, and have been apt to welcome all the material that came to hand, if it could claim respect on account of antiquity or quaintness.

In the first place, then, we may ask what kind of fairy tales and romances shall be admitted into our curriculum. Will any story, however fantastic, bloodthirsty, or unmoral it may be, answer our ends, or shall we select from the vast storehouses of the world's fairy tales those which are especially fitted to guide the imagination into wholesome ways? Again, are we justified in eliminating from some of these great fairy tales such episodes as, to say the least, have no elevating influence on the childish mind? I think it is worth while to come to some decision on this matter, because I have heard many teachers urge that questions of this kind do not trouble children. They accept the lies and cunning by which the heroes of these stories attain their ends with the same equanimity as they accept their wonderful feats of arms. But from the experience of many years' teaching of literature to young children, I can affirm that this is not always the case. Sooner or later the question comes from some thoughtful pupil, "But it wasn't right to tell that falsehood!" or, "Wasn't it very unkind to do that?"—the very same sort of problems that confront the mother when, in telling Bible stories to her children, she comes to the tales of Hagar and Ishmael, or Jacob and Esau, which, if she wants to defend the integrity of her heroes, she must explain away in some more or less ingenious manner.

Therefore I think some discrimination should be shown in the choice of tales presented to children. Our fairy tales and folklore were the product of primitive times, and thus, while they inculcate the special virtues of those primitive times, courage, patriotism, and generosity, they dwell with equal emphasis on bloodthirsty and *horrible details*. Again, many of them are of *Oriental growth; they glow* with the splendour *of the gorgeous East*, and for that reason make an especial appeal to the imagination; heroes are sensual, cunning, and a Are these heroic qualities, and such as children to attribute to those they would By common consent we have banished of sensuality from our fairy tales, and h fully bowdlerised the "Arabian Nights respect. But are the failings of cruelty, and avarice to be admitted any more tha and more fleshly sins? We would not e pupils to expend their admiration on a d yet is excessive drinking a worse cri unscrupulous lying?

Among the stories, then, which we m without question into our literature l would make the following selection. Of f pure and simple: "Beauty and the Beast Sleeping Beauty," "Red Riding Hood, derella," "The Seven Dwarfs," "Sno and Rose Red," and nearly all Andersen' though a few of these, such as "Big H Little Klaus," which is actually repulsi be rejected. The collection of the Grimm must be used with caution, for it much that is quite unsuitable. Some stories, which are little known in Eng have much of the charm of Andersen's, of Zacharias Topelius; unfortunately not these have as yet been translated.

So much for what may be called th tale; you will see that I have elimina very well known ones, notably "Bluebe "Jack the Giant Killer." I do not say t hands of a skilful teacher even these mig profitably used, but we must remembe least in our primary schools, the lowe where these fairy tales are generally rea are often taught by young and ine persons, whose own taste is not alwa peachable. I remember talking to a te day about the pleasure of little childre tales, and he answered, "Yes, they them—especially the bloodthirsty ones have known teachers to dwell on thes simply to thrill the class.

With regard to the great cycles of r think the following might enter our the "Odyssey," with some details, su blinding of Polyphemus, softened down "Iliad," because, taking it as a whol too exclusively with combats; most of myths—Persephone, Perseus, Phaeth cissus, and so on; the Argonauts; the story of Eros and Psyche; and perha two stories such as that of Alkestis, dramatists. Roman literature, being d rivative, offers less material, and what more sophisticated. Yet from Virgil we the stories of the Wooden Horse, the Dido, Nisus and Euryalus, Sylvia and I and Camilla.

About the "Arabian Nights" I a doubtful; yet one or two or these—S course—must be admitted. Generally however, they dwell too much on th

ings, offering always wealth and treasure
ard either of industry or cunning, to be
able as the other stories I have men-

European cycles of stories the Gaelic
Celtic romances have hitherto received
tion than the others; one reason, I am
ng the difficulty of pronouncing the
It is a pity that this should prove a
-block, for the stories are of extra-
beauty, and despite the inevitable details
and combats, which may easily be
n the telling, possess more spirituality
others. "The Wonderful Story of the
Death of Cuchulainn," "The Sorrowful
he Sons of Usnach," "Ossian in the
Youth," "The Children of Lir," the
of Mael Duin and of St. Brandan,
th them a glamour which I cannot
to have found matched in any other
These are Irish or Scottish, but a
harm attaches to some of the stories of
binogion" and to the whole Arthurian
t wonderful contribution to world litera-
ed by the Celts of many lands.
utonic stories are simpler, more straight-
nd more easily intelligible, and probably
reason they are better known and more
Nearly all the stories in the "Younger
re available. The Sagas, on the other
hardly meat for babes, the stories of the
ween the first settlers in Iceland, though
terest for boys and girls in their teens,
complicated and too horrible for young
One great English poem, however, is
being recognised and utilised in the
which should be most familiar with it.
y of Beowulf, with its fine lessons of
magnanimity, patriotism and loyalty,
olerably familiar in our schools. Other
stories, which we know from allusions
eowulf poem to be of equal antiquity,
suitable. In German schools, for
reasons, much is made of the "Nibe-
d." But, apart from the fact that the
notive, the jealousy between Brunhilde
mhilde and its reason, is a theme unin-
to children, the unlovely human qualities
tes render it undesirable.
s these world-cycles of romance there are
ies which are particularly suitable for
upils: the story of Hiawatha and the
Robinson Crusoe. "Hiawatha" is, of
oven out of Red Indian myths, idealised
oet. "Robinson Crusoe" is especially
to little children because it illustrates
ties of the natural man face to face with
and satisfies the creative imagination
so strong in childhood.
I have dealt with the fairy tale and
from the point of view of subject matter;
uld not be understood to have regarded
ply from the ethical standpoint. Only,
wealth of material that lies at our hand,
e should be careful to select that which
is beautiful both from the moral and the æsthetic standpoints.

Since the aim of all literature teaching should be to cultivate a sense of the beautiful, I would plead that even in the lowest forms literature should be treated as a subject worthy of attention on its own account; that a time should be definitely set apart for it, and that it should be used as material on which to exercise the child's power of expression and imagination. Though the subject of the literature lesson be only a fairy tale, we should treat that fairy tale as respectfully and with as definite an educational aim as, in the upper forms of the school, we treat a play of Shakespeare. I think it very necessary to dwell on this point, because in the teaching of little children it has been too much the custom to sacrifice this subject to others—to nature-study or history, or geography—as if it had no independent value of its own, and only deserved consideration in so far as it illustrated something else. Thus children have been made to learn inferior verse, and have been told inferior stories, simply because such stories and poems treat of some flower or animal which is the subject for nature-study at that time. But if we are ever to train the literary sense of our children, we must treat literature seriously from the very beginning; we must give them only the best; and we must deal with it in such a way as to make our children feel its beauty, and so create a standard of taste and judgment which will remain with them throughout life. Such treatment cannot be perfunctory or subsidiary to some other subject, and if the proper teaching of literature is incompatible with correlation, then I think that the principle of correlation should be sacrificed. Many of the nature myths are, of course, admirably adapted for correlation, and fit in with lessons on flowers or on geography. But do not let us abuse the fairy tale by relating vapid stories by uninspired writers simply because we know of no real literature which deals with what, I believe, is called in kindergartens "the natural object" under observation at that particular time.

Again, if we are to educate the taste of our children, we must be careful that even fairy tales are presented to them in a worthy literary form. As regards the old fairy tales, the simplest and most unsophisticated versions are the best; I have seen "Red Riding Hood" hopelessly vulgarised by the introduction of a love interest; and a little while ago, having set as one question in a paper for future pupil teachers the story of Cinderella for reproduction, I was very much disappointed to receive from ninety per cent. of the candidates a pantomime version, in which the two step-sisters —anonymous in the original—were distinguished by ugly and common names. We ought to do everything we can to guard against such vulgarisation, and so to train our children that they also will revolt against it.

As for stories from Greek and Latin and Teutonic literature, it is clear that the translations

of scholars are, *in their entirety,* unintelligible to children, and that some selection or modification must be made in the telling. But I think that in the recent enormous output of such stories retold for children, the modification and adaptation have gone much too far—so far that in very many cases the literary value of the originals has altogether disappeared. The adaptations are often very poor; the work is badly paid and sometimes anonymous; hence it is seldom undertaken by anyone with genuine literary feeling or possessing any scholarship. But adaptations, to be successful, should be made by writers acquainted with the original, who have won distinction in other fields of literature, who have an ideal of style, and who, while using simple language, do not try to write down to their readers. Children understand far better than we give them credit for, and if they do not comprehend the exact shade of every difficult word, it is better that they should meet these words and gradually learn their significance from the context than that the harmony of sentence and paragraph should be sacrificed. Good versions, suitable for children, of these cycles of romances do exist, but among the enormous number of such books they are as difficult to find as a needle in a bundle of hay. Teachers, therefore, must be at some pains to discriminate, and not be satisfied with the first that comes to hand. It must be remembered, too, that we want, first of all, good literature, not coloured pictures or an attractive binding; and that if these things are supplied at a very low cost, something must have been sacrificed—something not so obvious to the casual observer, but from our point of view far more important, and that is the literary matter provided.

To sum up. The chief points we have to keep in view in the use of fairy tales or romances as an introduction to literature are:

1. The selection of these tales; not all that comes into the net of folklore is suitable for our purpose.

2. The story must be valuable as literature, and must not be used simply because it illustrates some other subject.

3. It must be presented in a literary form.

STATE-AIDED SECONDARY SCHOOLS IN ENGLAND.

A PARLIAMENTARY Paper (Cd. 3538, price 1*d.*) containing a summary of statistics relating to State-aided secondary schools in England has recently been prepared by the Board of Education. The number of schools dealt with is 600, and the number of pupils in them, excluding pupil teachers, is nearly 105,000. Of this number, about one-quarter are below the approved four-year course, one-quarter in the first year of this course, and nearly another quarter in the second year of the course. After the second year, about one-third of the pupils leave; and the number in the fourth year of the course is only about 8,000, instead of the 26,000 in the first year. In courses above the regulation there are nearly 3,600 pu pressed in another way, the numbers roughly one-half of the pupils in State-aided secondary schools in Engl the first year of the approved course o while about one-ninth are in the four above it.

It is evident, therefore, that the majo pupils in State-aided secondary schools do not stay at school long enough t their four-year course and derive the advantages which it aims at giving: in at present the school career is trunca of being a completed structure. Th thus furnish a strong argument for th ment of the higher elementary scho mended by the Consultative Commit boys could enter at twelve years of ag at fifteen. There will always be a large parents who will expect their childre school at this age, and until courses o arranged to run to this age as the ter system cannot be regarded as satisfact

We must, of course, have in additi in which pupils will remain until later the work undertaken will naturally different scope and character. The course in our secondary schools is con the assumption that children who cc will remain at school until they reach a teen years of age, whereas, accord statistics just published, 80 per ce pupils are under fifteen years of ag 20 per cent. are above this age. has to confess, therefore, that the four- breaks down in actual practice, and is by about one-fifth of the pupils in its schools. The educational requireme four-fifths who leave school at about f of age are sacrificed for the benefit of t that remain to complete the prescribe

Several other instructive points are b by an analysis of the statistics. Of t pupils in the secondary schools to numbers refer, 24 per cent. had attended public elementary schools, no fees at the secondary schools. per cent. had attended public element and pay a fee of some sort at the schools, so that 54 per cent. of the wh of pupils in State-aided secondary England come from the elementar About 9,000 pupil teachers are under at the secondary schools, but are n in any of the foregoing figures.

A memorandum on the management acter of the secondary schools under tion, in respect of public control a from denominational restrictions, for the same Parliamentary Paper. It ap this that out of the 600 State-aided schools, 157 are provided by the loca 19 are municipalised endowed sch are ordinary endowed schools, and

schools. So far as can be ascertained, ıools there is a provision that the head ant teachers shall be members of a par- enomination, 71 provide that denomina- struction shall be given in the school, re subject to a provision that all or a of the governors shall be members of a r denomination. The sectarian diffi- wever, is not prominent in secondary for so far as the Board possesses infor- is believed that in many, if not most, of ary endowed denominational schools (75 er), the religious instruction given has ounced denominational character, and little to distinguish them from unde- nal schools.

ENGLISH LITERATURE.

NTS, ANNOTATIONS, AND CRITICISMS.[1]

to the study of English literature— hether in the shape of attractive reprints, notations, or critical studies—multiply From among the most recent we select a or consideration here.

ace of honour may fitly be given to Prof. " Shakespeare " (1)—one of the very best ever published in that generally admir- es, " English Men of Letters." It is a t every intelligent reader should enjoy; those who know their Shakespeare well appreciate its excellence. Indeed, one further and say that only those who are with a fair proportion of the vast litera- has grown up about and around Shake- an understand how much Prof. Raleigh ve read and digested—and happily for- r dismissed—before he wrote this book. not the least parade of learning; refer- hether to line and play, or to commen- d critics, are conspicuously absent: but ing has been assimilated, and has left leigh free to look at the plays again for nd form an independent judgment. The nce is that he writes with an easy of his subject that makes his book de- reading. Its distinguishing character xpressed in a sentence. It is an attempt to find the expression of Shakespeare's personality in his writings—not by ferreting out allusions to particular incidents that may have occurred in his life, but by recognising that a writer reveals himself best in what is evidently written with the full strength of his mind and heart. "As we grow familiar with his work, we are overwhelmed by the sense that we are in the presence of a living man."

Prof. Raleigh, by the way, commends the "alert and rapid" reading of a play for the sake of the wholeness of impression secured by that method. One would like to see this plan tried more often than it is in school lessons in English literature, and not with plays of Shakespeare alone. The expense involved has hitherto been an obstacle in most schools; but such an enterprise as "Everyman's Library" makes the obstacle less serious. Why should not a fifth or sixth form be taken through the whole of "The Seven Lamps of Architecture" in a term? They would probably enjoy it far more than fifty pages exhaustively treated, and the sum total of what they carried away would not be less. If in addition they acquired the power of "alert and rapid" reading for themselves they would have learnt a valuable secret not often mastered at school. Messrs. Dent's editions of Ruskin (2), with their excellent reproductions of the original plates, are a marvel of cheapness. Five shillings will buy the whole of "Modern Painters," which a few years ago could not be purchased for five guineas. It would be difficult to suggest a better prize for a boy or girl of literary or artistic tastes. Two commendable features of this edition are the bibliography and the index. The utility of the introductions by various eminent hands is more doubtful. But if some of them are as tedious and superfluous as the chairman's speech which stands between the audience and the lecturer, an exception must be made in favour of Mr. March Phillipps's preface to the "Stones of Venice." This exactly strikes the right note of enthusiasm tempered by criticism, and cannot fail to be helpful to many readers.

Messrs. Bell's two dainty little volumes on "Spenser" and "Dante" (3) deserve a warm word of praise. They are modest performances, but in each case they are the fruit of first-hand study and enlightened admiration. Such introductions are sometimes objected to on the ground that their readers may be satisfied to have read about the poets without reading the poets themselves. The fear is groundless. It is simply inconceivable that any potential student of Dante or Spenser would be deterred through the reading of Mrs. Egerton Castle or Mr. Tuckwell; and it is quite certain that some who would not have tried Dante or Spenser for themselves will be persuaded into doing so by the delightful extracts and descriptions here given.

The Rev. A. F. Watt's "Richard II." (4) is a very practical edition of the play, not overburdened with notes, but giving all necessary help. It is also a thoroughly sound, scholarly and inde-

kespeare." By Walter Raleigh. vi+232 pp. (Macmillan.)

Works: "Modern Painters." 5 vols. With Introduction by Vol. i., lxxiii+257 pp.; vol. ii., xxiv+374 pp.; vol. iii., xviii+ iv., x+389 pp.; vol. v., x+368 pp. "Stones of Venice." Introduction by L. March Phillipps. Vol. i., xxix+380 pp.; p.; vol. iii., 313 pp. "Unto This Last, and Other Essays." ction by Sir O. Lodge. xxiv+311 pp. (Everyman's Library,), 1s. net, leather, 2s. net, per volume.
er." By Rev. W. Tuckwell. 85 pp. "Dante." By M. L. le. 110 pp. (Bell's Miniature Series of Great Writers.) 1s.

speare, Richard II." Edited by A. F. Watt. xxx+158 pp. utorial Press.) 2s.
u Like It." xxxviii+152 pp. "Merchant of Venice." xlii+ ed by E. C. Black and A. J. George. (New Hudson Shake- l Edition. Ginn.) 2s. each.
Pearl." Edited by C. G. Osgood. lix+202 pp. "Early ntury Lyrics." Edited by F. M. Padelford. lviii+174 pp. Lettres Series; Section II., Middle English Literature. 6d. net each.
n's "In Memoriam." With Analysis and Notes by H. M. iii+185 pp. (Macmillan.) 2s. 6d.
s and Poems illustrating English History." Edited by Frank iii+212 pp. (Cambridge University Press.) 1s. 6d.

pendent piece of work. But why does Mr. Watt disguise Dr. Abbott, on whose "Shakespearian Grammar" he has very properly drawn, as "Mr. Abbot"? The editions of "As You Like It" and "The Merchant" in the "New Hudson Shakespeare for Schools" (5) have a well-printed text with notes at the foot of the page. The notes are interesting, though too full of textual criticism for ordinary school purposes, and leaving some of the difficulties of beginners untouched. The introductions are elaborate in their treatment of the sources and in the analysis of character; they are the work of competent American scholars, and very clear and systematic in arrangement.

To the keen interest of America in the study of English literature we also owe the "Belles-Lettres Series" of Messrs. Heath (6). Everything that a publisher can do in type and paper, binding and form, to make learning attractive, is done in these charming volumes. Of "The Pearl"—described by F. T. Palgrave as "perhaps the most purely and ideally beautiful specimen of our elder poetry which good fortune has left us"—there have been two editions in England from the unique manuscript in the British Museum, but both are expensive. Dr. Osgood, the American editor, has worked afresh from the manuscript through photographs made for him in England, and claims to have corrected errors of detail in both of the earlier editions. He has not given a translation, but the glossary and notes are so full as to make a translation unnecessary. The introduction is written with delicate feeling as well as knowledge, and altogether this volume should win many new admirers for a poem which is as precious and delightful as the name by which it is called. Another important contribution to the textual criticism of "Middle English" is made by Dr. Padelford in his "Early Sixteenth Century Lyrics." He has taken his selection, which comprises the best poems of Surrey, Wyatt, and the other courtly poets, from the manuscripts and earliest editions. The notes deal fully with the Italian sources of the poetry.

Mr. H. M. Percival's edition of "In Memoriam" (7) contains a good analysis and notes that are mainly concerned with the interpretation of the text—the elucidation of ambiguities in the expression or obscurities in the thought. It is a really original contribution to the study of the poem, drawing comparatively little from previous commentators.

Several good collections of historical and patriotic poems for schools already exist, but Mr. Frank Sidgwick's volume of "Ballads and Poems illustrating English History" (8) justifies itself by its inclusion of several interesting and unhackneyed ballads. The chronological order adopted is not an order of composition, but of historical events. This has its obvious conveniences, and the teacher who attends to Mr. Sidgwick's hints in the preface can easily save his pupils from that confusion between the traditional and the artistic ballad which otherwise might be *the resulting drawback* of this arrangement.

THE EARLY STUARTS.[1]

THE period of the early Stuarts is coming to its own. It has long the hands of polemical writers. wrote his history of the period to George III. in his attack on the Whig o and his endeavour to restore personal m Hallam wrote his Constitutional His answer Hume and to justify the Whigs in effecting the revolution of that which personal monarchy was for ev dered impossible. Because he was, Whigs of his time, quite indifferent logical or ecclesiastical questions, and as a lawyer he wrote in legal form, he ea title of the "judicious." But the m could speak of warring theologians as "a sects," over whom "it was expedient State to scatter a little dust," and thus the silencing of the Convocations of the Church, was quite incapable of writing tory of the later stages of the English tion. Carlyle began to throw light on th when he unearthed Oliver Cromwell obscure grave in which he had lain so l published the text of his letters and spee is not so long since death cut short the S. R. Gardiner, who has, at least for ou tion, told the story of the Puritan Revo it should be told, not merely with the j ness of Hallam, but with sympathy with logical and ecclesiastical ideals of the parties of the seventeenth century. He followed by a number of writers of vario among whom Prof. Frith is the great Prof. Montague would be the first to ack that but for Dr. Gardiner's work, his o have been impossible.

Here, then, in this seventh volum Political History of England, we have a of our latest information on the r James I., Charles I., and Oliver; and is well told. Specially would we direct to the remarks on taxation (p. 36), on ment (pp. 101, 119), on the prisoners (p 163), and on the religions of the Highlands (p. 204), all of them matters our text-books so far have been vague satisfactory. We should have been glad detail about the Pilgrim Fathers (pp. 10 we think Prof. Montague might have his sympathetic account of Laud some m George Herbert and of the Little Gidd munity, which would have helped his P Nonconformist readers to understand tha ideal was not exclusively his own. We account of the sects in 1641 (p. 250) s exaggerated because it omits the more of them, and we should like to know his for his statement on p. 323 that the Inde were willing to tolerate Roman Catholics

The volume includes, like others of t

[1] "The History of England, 1603-1660." By Prof. F. C xix+514 pp. (Longmans.) 7s. 6d. net.

full and discriminating bibliography, but miss such books as Hanbury's "His- Memorials relating to the Independents," publications of the Hanserd Knollys

Finally, to end our fault-finding, we sk if a bill of the rebel Parliament became finance" before it was passed (p. 305), Mr. Glass has not, in his account of the e Parliament, satisfactorily proved that e's name was not Praise-God, but only

We have mentioned these matters in at some of them may receive considera- ore a second edition is required, not with a of detracting from the value of this which, with its fellows, should find a the shelves of all teachers who wish to eir pupils true ideas of the history of l.

MARY CHRISTIE.[1]

NG the women of the later Victorian eriod who have rendered notable service the cause of education in England, the f Mary Christie deserves to be held in remembrance. Her chief work, the Art ools Association, founded in 1883, lives r; and one hopes that it has a long career lness before it still. How much it has ished, directly and indirectly, for elemen- hools may be gathered from the story Mr. Storr recalls as having been told by ua Fitch at the drawing-room meeting w the inception of the movement.

nspectorial visit to a London Board School he had d on the bare walls. When he went the next headmaster called his attention to the change and to him how it had been wrought. "After what sir, I went round to the advertising agents and them to give me the pick of their coloured nents in the railway stations."

f the Art for Schools Association is her l most imposing memorial, Mary Christie ind her other tokens of a life rich in s, especially in the shape of literary con- ns to the *Spectator*, *Guardian*, and other , and of letters to friends in which she l a remarkably original and attractive per- . Out of these materials her friend Miss has put together a volume of varied in- nd much charm. Miss Withers herself ites a biographical sketch, the more effec- m the restraint and self-suppression with t is written. Mary Christie's thoughts e deeper things of life are expressed in a f intimate letters to a friend, and in "The a Return" (from agnosticism to Christian e writes, apparently at the request of the riend, a very striking chapter of auto- hy. The rest of the volume consists of articles and poems. The paper on Cor- delia, which gives its title to the book, is perhaps the least attractive: it exemplifies the common fallacy in Shakespearean criticism—the fallacy of treating Shakespeare's creations as if they were natural phenomena. But whatever her subject, Miss Christie's thoughts were always her own; and all these papers and verses, readable for their own sake, are additionally interesting for the light they throw upon their author.

[1] *urdines in Nature," and Other Papers. By Mary Christie. Memoir by Maud Withers. 331 pp. (Manchester: University*

THE FEDERAL CONFERENCE ON EDUCATION.

THE conference organised by the League of the Empire proved a great success. The meetings were in progress as we went to press last month, and it was consequently impossible to summarise the proceedings and conclusions of the conference in the June issue of THE SCHOOL WORLD.

It is understood that a strong desire has existed that official conferences on education, consisting of representatives sent by the various Governments throughout His Majesty's dominions, should be held at regular intervals, and that the first of such conferences should be convened by the Imperial Government.

We are officially informed that an announcement was made on behalf of the Government to one of the conferences of education representatives of various Colonial and Indian Governments and of the Home Government, held by invitation of the League of the Empire, that His Majesty's Government considered it desirable to arrange for an Official Education Conference to be held in the year 1911. The Secretaries of State for the Colonies and for India are preparing to send out intimations to that effect.

From a statement issued by the official conference we select the information likely to give a general idea of the results arrived at. The meetings were held at Caxton Hall from May 25th to June 1st. The conference consisted of representatives nominated for the purpose by the several Governments or education departments, and held its meetings in private. Mr. S. H. Butcher, M.P., chairman of the council of the League of the Empire, presided as chairman throughout, and Mrs. Ord Marshall, hon. secretary of the League, attended as secretary.

The first meeting was devoted to settling procedure at the official meetings and to the selection of subjects for discussion. It was decided that the larger subjects which it was desired to discuss should be taken in full conference, and that certain subjects of a more special nature should be discussed in three committees consisting respectively of those representatives in whose countries these subjects were of chief importance.

The morning meetings on each day were devoted to sessions in full conference, and the committees met in the afternoon, and resolutions were only put when it was clear that the conference was prepared for a unanimous decision.

On the morning of May 27th the subjects of discussion were: "(*a*) the mutual recognition of teachers' certificates" and "(*b*) the interchange of teachers and inspectors." Under (*a*) the conference was asked to consider "whether, in order to facilitate interchange of teachers, practical steps could now be taken to promote a larger degree of mutual recognition of the teachers' certificates issued by different educational bodies in various parts of the Empire; and whether in the case of individual teachers more might be done by the education depart

ments concerned to sanction provisional recognition of one another's certificates for short specified terms, the renewal of such recognition to be contingent on favourable reports being received from inspectors who have observed the teacher's work." After a considerable interchange of information as to the manner in which certificates in the various countries were awarded and their value equated, the conference came to the conclusion that the variety of local conditions, especially in regard to such matters as the tenure of teachers, their method of appointment and promotion, and similar points, made it impossible to arrive as yet at any complete system of mutual recognition of the teachers' certificates issued by different educational bodies in various parts of the Empire.

As regards (*b*), the conference was asked to consider "how far interchange of teachers and inspectors between different parts of the Empire would be feasible (i) for a short visit or (ii) for a term of years." It was resolved "that the conference considers it desirable that financial and administrative arrangements should be made for enabling teachers and inspectors of schools to acquire professional knowledge and experience in parts of His Majesty's dominions other than their own."

On May 28th the subject of discussion was "the possibility of closer uniformity of curricula, nomenclature, and methods of presenting official educational statistics." On the first part of this subject it was resolved "that, in the opinion of this conference, it is not desirable or necessary to take any steps to bring about uniformity of curricula or text-books for the different school systems of His Majesty's dominions." On the second part it was resolved that "it is desirable that the different education departments of His Majesty's dominions should define year by year, with precision, the terms used in the regulations and statistics that they publish and the basis upon which their published statistics are prepared."

The next three sittings were devoted to a careful investigation into the various ways in which the interests of education in the different parts of the Empire could best be furthered by encouraging closer relations and a more effective and continuous exchange of information between the several education departments. It was felt that the actual meeting together in conference of persons engaged in the administration of education for the purpose of personal interchange of information and ideas was of the highest possible value, but that there were also great advantages to be derived from having a permanent machinery for collecting and disseminating year by year information on various subjects in regard to the condition, development, and progress of education in the different parts of the Empire. The following resolution was agreed to: "That the delegates desire to express their appreciation of the value of this conference to the work of the education departments throughout the Empire, and resolve (i) that a quadrennial conference is desirable, (ii) that the representatives sent to the conference should be selected by the Governments, and (iii) that it is desirable that the first of such conferences should be convened by the Imperial Government." It was also resolved that "the conference is unanimously agreed as to the importance of a permanent central bureau of educational information."

A resolution was passed also "that this conference places on record its high appreciation of the work done by the League of the Empire in stimulating educational activity and in collecting and circulating information on educational subjects."

A summary is here added of the subjects discussed by the three committees of the official conference.

Committee A.—Problems affecting parts of th in which there are large English-speaking po (*a*) The relative value of professional training tical experience in the education of the teache primary schools, (ii) for other schools.

(*b*) Rural education: (i) The training of teachers schools; (ii) the provision of education in spars lated districts; (iii) the modification of the curri schools in rural areas; (iv) (*α*) the relation of schools in rural areas to specific agricultural edu a higher type; (*β*) the provision of specific ag education for rural areas.

(*c*) Scholarships *v.* low fees in education ot elementary.

(*d*) Physical training (i) in elementary, (ii) schools; (iii) what should be the differentiation to the sexes.

(*e*) Manual training and training for the duti home.

Committee B.—Problems affecting Englis populations in remote portions of the Empire encouragement of higher education (i) by co between neighbouring colonies; (ii) by the estab scholarships tenable in larger centres within the (iii) by the holding of examinations conducted by ties situated in other parts of the Empire. instruction. (*c*) Hygiene. (*d*) Co-education.

Committee C.—The bi-lingual problem, both being European.

Resolutions of the Sections.

In addition to the meetings described, the co of technical questions occupied the attention sections, each of which had frequent session some sections resolutions were adopted. These below.

Nature-study Section.

(1) "As nature-study gives that wide knowle world and its products which is required throu it should be inculcated at all stages of sou education, and this section recommends it encouragement in the home, in the school, and side world. Furthermore, this section trusts education authorities of the Empire will end extend and encourage knowledge self-gained fro observations, as a vitalising factor in the progr intellectual efficiency."

(2) "That the supply of teachers acquainted methods of nature-study being the greatest prese ment, special efforts be made to provide faciliti proper preparation for the work of students an in training."

Museums Section.

(1) "That the formation of school collections of science or art is a valuable aid to education."

(2) "That when school collections are made t natural history or other branches of knowledge ments for the exchange of such collections betwe parts of the Empire will assist the objects for League is instituted."

(3) "That teachers and others should disco making of such collections as might tend to the tion of rare plants or animals, and should ass serving such objects by fostering a knowledge a nature."

(4) "That this conference recognises the value

the circulation of museum objects, as organised
ictoria and Albert Museum, South Kensington,
: Dublin Museum of Science and Art, at Sheffield
and elsewhere, and warmly advocates an extension
›pment of the system."
ıat this conference recommends the organisation
nanent collection of objects specially interesting
l to those engaged in educational work, in con-
ith one of the great museums in London. That
›llection should include typical school museums
ıtlines of a local educational museum."

University Section.

hat this section desires to express its sympathy
ıcouver College in the severe loss which that
s suffered by the death of its Principal."
hat this section desires to express its sympathy
IcGill University, Montreal, in the blow sustained
niversity in April last in the destruction by fire
of its buildings."
hat it is desirable that a committee represent-
rsities should be formed to investigate the ques-
her it is possible to facilitate the exchange of
›n as to their courses and standards between the
:s of the Empire, and to take action accordingly."

Teaching of English Section.

hat this conference urges the importance of the
he English language and literature as an essential
hool training on the grounds of practical utility,
tened patriotism, and the human ideal in educa-

hat in the teaching of living languages the direct
used, with occasional explanations in the mother
the pupil, when it is evident that the latter has
stood the teacher."
hat the object of the teaching of English should
velop in pupils the power of thought and ex-
and the power of appreciating the content of
rary works, rather than to inculcate a knowledge
ıatical, philological, and literary detail."
hat fairy tales, skilfully used, provide a valuable
literary education for young children."

FERENCE OF HEADMISTRESSES.

ıcorporated Association of Headmistresses held its
rd annual conference on June 7th and 8th at the
at Hospital, Westminster. After the transaction
l business, which included the adoption of the
eport and the announcement of elections to the
committee, the president, Miss F. Gadesden,
ress of Blackheath High School, delivered her
in which the question of examinations occupied
position. She said that the opening of university
ions to women has resulted in an extraordinary
ıent in the highest as well as the average work
schools. Of this the examiners have been only
to take advantage. Year by year the amount of
quired in preparing for university certificate ex-
ıs, especially scholarship examinations, and the
s of the papers, have increased, until the relation
the object attained and the effort to gain the
out of all proportion. Examinations have become
tests of endurance, physical fitness, and health
ellectual merit and efficiency, and entail risks to
brain and body which, in the interests of the future citizens, it will be well to avoid. Miss Gadesden then referred to the system adopted by the Board of the Admiralty in the selection of cadets, and by some local authorities for the award of scholarships, and commended some such scheme as the following:

(1) The recommendation of the teacher given through "records" which represent the results of the scholar's work for a considerable space of time.

(2) An examination of the "records" by a board from which the teachers should not be excluded, followed, if necessary, by an interview with the candidate.

(3) Short examination papers on certain subjects to test ability and proficiency of a certain kind.

Miss Gavin, Notting Hill High School, introduced a discussion on the training of secondary-school teachers. Papers on this subject which were read at the conference last year had been circulated, and the discussion was continued from last year.

On June 8th the proceedings opened with the election of Mrs. Woodhouse, Clapham High School, as president for the years 1907–9. Miss Burstall, Manchester High School, chairman of the meeting of members of the association who are members of education committees, held on June 7th, presented the report of the meeting, at which the following resolutions were carried:

(1) "That it is desirable to encourage the establishment of more higher elementary schools and fewer secondary schools."

(2) "That in both higher elementary and secondary schools it is better to deal separately with boys and girls."

Miss Leahy, Croydon High School, spoke on the educational value of the curriculum for the first and second years of the four years' course arranged by the Board of Education. The discussion which followed resulted in the unanimous adoption of a resolution "that this meeting records its emphatic disapproval of the very definite manner in which the curriculum and time-table of secondary schools are now governed by the regulations promulgated from time to time by the Board of Education. It is profoundly convinced that the destruction of the initiative of the teacher which is thus being effected must result in much stagnation of educational thought at its principal sources."

The following resolutions were carried unanimously:

"That this conference regards as most unsatisfactory the limitation of sphere and inferiority of status assigned to women on the inspectorate of the Board of Education. It is of opinion that duly qualified women should be eligible for places in all grades of the Board's inspectorate, and that vacancies should be advertised or otherwise published in order that the highest attainable excellence in the appointments should be secured.

"That a committee be appointed to consider the means (if any) of bringing the heads of secondary schools for girls in the Colonies, India, and the Dependencies, into touch with the Association of Headmistresses.

"That the conference would welcome on educational grounds the substitution of the metric system for that of existing imperial standards."

Papers were read by Miss Clay, Queen's School, Chester, and Miss Taylor, County School for Girls, Tonbridge, on "Discipline: what is it, how is it best maintained?" and by Miss Dove, Wycombe Abbey, and Miss Walker, Roan School, Greenwich, on "The Modern Girl: how are we fitting her for her varied duties in life?" both subjects being discussed by the conference.

The conference will meet next year at the Manchester High School.

GEOGRAPHY IN EDUCATION.[1]

THE question upon which I desire to concentrate attention is whether geography shall be accorded a place alongside of other sciences amongst the subjects eligible by candidates for the examinations which admit to the Civil Services of this country and its dependencies. For a good many years the Foreign Office stood in an exceptional position amongst the Civil Services of the Crown by including geography amongst the subjects for the entrance examinations of candidates. The Foreign Office, indeed, went further by making a pass in this subject compulsory. It was a reasonable matter of hope that, with the advance of education and the widening of public opinion, the enlightened example of the Foreign Office would be gradually followed by some of our other public departments. The announcement was made, however a short time ago that uniformity was to be secured in the system of examinations for all the public services, not by levelling up to the standard of the Foreign Office, but by the opposite process of levelling down. That has been our characteristically British method. After June geography will cease to be a subject which candidates for the Foreign Office may select even voluntarily.

I am concerned to make it clear that the question is one of far wider importance than as merely affecting the efficiency of certain of our public services. That this fact has been so little recognised is, I think, due to a natural and even commendable repugnance on the part of cultured minds to admit that our educational systems, based nominally and to a large extent really on intrinsically sound educational principles—such as developing the thinking powers of the student strengthening his judgment, quickening his perceptive faculties, and cultivating his memory—have also necessarily rested largely on what, for want of a better phrase, I must describe as financial considerations. These fall into two divisions.

The first of them affects directly only the universities, but it affects indirectly the educational systems of all the non-State-aided schools in this country, as these, for various reasons, base their systems en irely on those adopted by the universities. It is a serious misfortune that but few of the latter have been in a position to set apart sufficient funds for the endowment of a chair in geography or a school of geography Yet I do not know of a single instance of a university in the United Kingdom which is indifferent on this question of geographical education. So far as I can gather—and I have taken considerable trouble to ascertain the general trend of ec ing—nothing but the want of money preven any of the universities from following the examples of Oxford, Cambridge, and London. But in most cases the too scanty funds are already appropriated to older established branches of study which no thinking man would wish to see starved.

The other division of financial considerations to which I alluded just now is of a less simple nature, but it is not less effective n blocking the progress of geographical education and the introduction of this subject into the list of those eligible by candidates for the public services. To avoid misapprehension on this point, let me premise that I am not dealing at present with the educational systems of our State- or rate-aided schools which are not dependent on the favour of parents or subject to competition with other schools. It will suffice to confine our attention for the moment to private schools, public schools some extent, universities, that is to say, to where the sons of the leisured classes, or the classes, are brought up, and from which strata tional ideas and systems have invariably filtere the less-favoured classes which are waging a dai for bare existence.

With rare exceptions, every educational insti supported by public funds has to some degree varying degree—to strike a tacit bargain with of its students, the parents paying the money the prosperity or most frequently, the existe institution depends, and requiring in return, i majority of cases, that their boys shall receiv struction as shall best enable them to compet terms with their fellow students. The pro private schools, the governing bodies of public s even, though to a lesser extent, the universities cannot therefore afford to give the same prom subject which carries no marks in the civil a examination that they give to subjects which marks. On the other hand, the Civil Se missioners naturally hesitate to demand profi subject which holds only a secondary positio times no position at all, in the educational in the country; and the question thus moves i circle.

I do not, of course, imagine that all the well-to-do classes of this country compete in controlled by the Civil Service Commissione proportion of them so competing is sufficien affect very seriously the standing in the whol sphere of any subject according as it is or is of gaining marks in the civil and military e and it may, I think, be confidently asse geography received the recognition which w would very shortly take its place in Great B has long since done in the United State and other countries, as one of the fund indispensable elements in the education of c youth.

That this has not been the case up to nov due to the unintell gen and unmethodical mar the subject was taught until some twenty yea the result that the majority of those who ar position to speak with authority retain an impression of its scope and objects. Certainl own school life, the hour in the week devoted was universally anticipated with strong a dreary exercise of the memory in acquiring n divorced from the realities of life, so that on human and nteresting of all branches of k timately connected as it is with the history with our presen occupations, and with our fu ment, was presented to us as an arid a waste.

The new methods and conceptions of ge been so frequently and fully placed before you competent experts in our science that I mus to summarise them in this brief address. commend those who are not yet informed to procure and study the questions in the papers of the University of Oxford. They from them an idea of the true scope and science, and they will probably find openi them new and unexpected lines of thought w materially to the interests of their own lives.

[1] Abridged from an address delivered before the Royal Geographical Society at the anniversary meeting on May 27th, 1907, by the president, Sir George Taubman Goldie, K.C.M.G., F.R.S.

ORY AND CURRENT EVENTS.

Colonial Conference in May last, Mr. Deakin, of Australia, said that "Australian experience show that abstract economics were as far re- om the ordinary world of politics as abstract ics from the trade of a carpenter." Exactly so. far removed" and no farther. In other words, rpenter dares not disobey the laws of nature as n "abstract mathematics," whether he knows ıot, if he is to be successful in his carpentering, ordinary world of politics" must be managed ınce with the laws of human nature as set forth act economics" if we are not to run our heads rick walls, and try to bring about a millennium y, instead of aiming at the ideal of the Prayer h for Parliament that "all things may be . . nd settled . . . upon the best and surest founda- When the politician talks sneeringly about economics" we may begin to suspect him of a nowledge.

iminal law is again being "amended." A few the first important change in procedure was allowing the accused to give evidence on his own ow there is to be the possibility of appeal from t of the "twelve men in a box," which has for ıerations been regarded as the "palladium of perty." The change is not so great as might at appear. For the new Appeal Court is regarded ıle mainly to relieve the Home Secretary of the being practically such a court with disadvantages o his position. But, nevertheless, our constitu- ıanging; and the change is being effected in our y. A grievance has been felt, and a means of found, without regard to principles but with a ard for practical convenience. The remedy is this case, by means of an Act of Parliament. is worked out by judge-made law. But in either e is no need for resort to extraordinary methods ging the constitution" as our cousins in America ve to use.

way, how old is this "trial by jury" of which o proud, and which we are beginning to suspect vays the ideal perfection that we used to think it be exact, when did it come about that, whereas s of the twelfth century, when we read of them xt-books, consisted of witnesses, and at first of for the defence, they now consist of persons who thing of the case before they enter the "box"? obably surprise most of our readers to learn that ge was a slow and gradual one, and that the as not complete until the reign of Anne. "Alfred irst British Jury" should by now be regarded as smissed, but it would be well to give occasional our pupils on the history of our criminal pro- nd so give ourselves an opportunity to get clear *e.g.*, the method of treating a burglar from the is caught until the moment that lands him in . Before how many juries does he appear?

mediæval kings first began to summon parlia- which representatives were chosen by those whom e to represent, the communities thus represented sses of the people acting as such and called " In the English Parliament, the only one of diæval institutions destined to survive into post- ion times, and in the modern imitations thereof w exist in European *countries, this* method has been set aside in favour of a representation of places. The mediæval parliaments resembled the Roman *comitia centuriata*, the modern ones are liker to the *comitia tributa*. Now that Parliaments represent in a more or less confused way the general sense of the State at large the classes whose interests are ignored are developing other methods of representation. Opposed to the State, yet not powerful enough to make States, they are necessarily violent and "criminal." Does this explain the "labour" troubles in San Francisco and in France of which we hear nowadays? Does the presence of "labour" members in our own House of Commons point to a revival of *comitia centuriata* as a substitute for our present forms?

ITEMS OF INTEREST.

GENERAL.

If progress in education were in direct proportion to the amount of discussion of educational topics which takes place, we should have reason to congratulate ourselves. But though every week seems to bring with it some important meeting in which educational affairs are the subject of deliberation, there is still little unanimity on many fundamental questions. This divergence of opinion showed itself in the speech of the president of the Association of Education Committees at the meetings held on June 6th and 7th. Mr. G. White, M.P., in his presidential address, referring to our national system of education, said the elementary side, which for many years made most satisfactory advances, has, in his opinion, during the past five years not only ceased to make progress, but has retrogressed, while secondary education in several of its branches has been very properly described by the Board of Education itself as being in a state of chaos. He expressed the conviction that this state of affairs is partly due to the lack of properly qualified and trained teachers, and he maintained that the Board has put a hindrance in the way of the local authority by ceasing to classify teachers in the certificate examination, thus leaving it without any guidance whatever as to the relative merits of applicants so far as those merits can be determined by examination. Other eminent authorities are of opinion that the abolition of classes in this examination has released the student from the need of limiting his reading to what "pays" in an examination, and given him time in which to acquaint himself with principles likely to guide him in his future work. The lack of "properly qualified and trained teachers" for secondary schools is more easily explained. When the profession of teaching in secondary schools is adequately remunerated, a higher type of student will be attracted, and there will be no difficulty in obtaining good teachers.

All students of education will agree with Mr. White that "the children should be taught to think for themselves," and this cannot be done unless we have teachers who have learned to think for themselves and are furnished with more opportunities for exercising this art than are now granted them. One of the first and most urgent problems, Mr. White rightly contended, is that of the provision of colleges on a broader basis, with more enlightened methods and the freer use of the university colleges in connection with them wherever this is possible, especial emphasis being laid upon the art of teaching. But these remarks had the elementary-school teacher specially in mind. Here again, so far as the teacher in the secondary school is concerned, it is a question of expense. Until the prospects of the secondary-school master

are much improved, it is unreasonable to expect university graduates further to extend their years of preparation by taking a post-graduate course in a suitable training college. Middle-class parents have yet to learn that good secondary education is an expensive commodity, and that unless school fees are increased substantially, it is impossible to pay adequate salaries to the teachers without the aid of rates or taxes.

THE executive committee has felt compelled to bring to a close the operations of the National Association for the Promotion of Technical and Secondary Education. Recent reports have indicated that, owing to decreasing income, such a closure might become necessary before long. The executive committee, having gone into the whole situation, unanimously adopted the following resolution: "That, having given their most careful consideration to all the circumstances relating to the affairs of the National Association for the Promotion of Technical and Secondary Education, the executive committee are of opinion that the time has arrived when they may properly retire from their active operations; and it is hereby resolved that the association shall be wound up on June 30th, 1907. The committee venture to congratulate the members upon the accomplishment of the primary objects for which the association was founded twenty years ago, and to express the conviction that, in the performance of the important duties which, as a natural sequence, have followed upon that accomplishment, the association has contributed largely to a greatly improved educational organisation and to a quickening of zeal for even more effective progress in that behalf." It was also resolved that a brief final report, embodying an audited financial statement and a list of the supporters of the association, should be prepared. This will be done, and the report circulated after the close of the current financial year.

THE first annual conference of the Association of Teachers in Technical Institutions was held too late in May to make a reference to the meeting possible in our last issue. We are glad, however, to take this opportunity of congratulating the officers of the association upon their successful discussions at Leeds. Mr. V. A. Mundella, of the Northern Polytechnic, London, the president for the year, delivered his presidential address. Among other topics with which he dealt was the scholarship question. The success of technical teaching, he said, depends upon successful primary and secondary education. A tremendous leakage is represented by the passing outside the pale of educational effort of children beyond the age of twelve, and the president urged that up to the age of seventeen secondary education, widely diversified to meet local conditions, the standing of pupils, and the wishes of parents, should be made compulsory. There would thus be a perfectly natural development of the child. Scholarships, he continued, do not meet the requirements, and grammar schools and public schools have no effect on the problem of secondary education, which is the provision of suitable schools for the 600,000 children who leave the present elementary schools, a number many times as great as that of the children in the recognised secondary schools. The examination system for scholarships is fundamentally wrong, besides being very expensive. It works out for the whole country at about £20 per scholar on the average, a sum almost twice as great as would maintain the child in a provided secondary school belonging to the *local authority.* An organised system of secondary education *must be provided by* every local authority in which *every child has a place suited* to its aptitude and to the wishes of the parents. Higher technical schools, colleges, and polytechnics must be provided in in suitable centres. There must be room for a elastic system of scholarships and bursaries so th need sacrifice his opportunity on the ground o income.

EDUCATIONAL authorities and headmasters h considering their liabilities under the new V Insurance Act which came into force on July Association of the Headmasters of the Endowe in the Midland Counties discussed the subject meeting in March last, and decided to urge the University Scholastic Agency to take up the ma secretary of this agency now announces that he arrangements with a thoroughly trustworthy offic considerable saving may be effected on the cha by most insurance offices. Such insurances ma all assistant-masters and assistant-mistresses, servants, or other employees engaged in conne educational work. Full particulars can be had Lewis, New Museums, Cambridge.

AT the request of the Cardiff Education Com Philip Magnus has reported upon the educatio of Cardiff. That part of his report which deal relation between the technical classes and the College is mainly of local interest, but his re the supply of secondary education have a bea similar problems elsewhere. He points out th is fortunate in having a scheme of secondary which needs additions and improvements rathe reconstruction which is necessary in some ot The existing schools consist of two intermedia one for boys and one for girls, and a municipal school, which is at present a dual school. mediate schools have a fee of £7 10s. per yea municipal school of 6d. per week, an arrangen produces a certain amount of social differentiati the schools, but which appears to work well a the views of two classes of parents. Sir Phil states, not only that there is room in Card existing schools, but that even with the add new secondary school for 500 scholars now bu provision of secondary education will not be ir the requirements.

THE demand for secondary education in la grows steadily, and the bitter opposition it e ten or fifteen years ago is dying out. Some of is artificial, being due to the regulations wh sixteen the age for appointment as a pupil te the greater part of it is due to the fact that the schools have at last realised that eleven or t thirteen or fourteen, is the proper age for tran a secondary school. Boys and girls come earl municipal and secondary schools and stay longe than they used to do, so that, although about number pass through the schools, yet the numb at any given time is larger, and the educatio being of longer continuance, is more sound and Sir Philip Magnus recommends that in the new school the education given shall be of a ra practical type than that given in the existi While in general agreement with this, we dou much can be done to alter present conditions curriculum in the existing school is that of a school of science, and in such schools it is no to reduce the small amount of time now given subjects and modern languages. Latin perhaps

his would shut boys out from scholarships versity.

Prof. Michael Sadler is sufficient in itself ention to his pamphlet on "A Bureau of he British Empire." His experience in the the Special Inquiries Department and his ntributor to the publications of that Depart- itional weight to the opinions he expresses. had its origin in an address delivered at a Liberal Colonial Club in December, 1906. part he reviews the reasons that render establishment of an Imperial Bureau of ie "painful course of self-preparation" that cedes any great educational reform requires of experience and a careful observation of d under the different systems that have been e various parts of the Empire. Moreover, t the inner drift of things is toward imperial ected educational influences can further the public opinion in that direction." Prof. des that "What is wanted is an annual which will give a sufficiently detailed account ional systems of the British Empire." The his paper discusses the work that the Bureau ake in this direction. It should, however, ct statistics, but also serve as a centre for How far these two directions of activity ted in one office, whether such a bureau as ed should be officially connected with any rnment department, are among the many other eceive consideration. To direct attention to paper is to render service to the causes of federation. To read it is to become imbued

of the University of Oxford School of Geo- he year 1906 has now been published. The tudents on the roll during the year was: 60; Easter term, 21; Michaelmas term, 110. the roll in the corresponding terms of 1905 , and 39, most of whom attended only lecture number of students giving all or most of geography shows a gratifying increase. Ten ie Michaelmas term took the diploma courses, hers took the certificate courses. The rapid udents giving most of their time to geography ited the appointment of a demonstrator to ader. The reader in geography has reported ittee that on several occasions he has been ommend men specially trained in geography ips, masterships, and positions in colonial rveys. He has in most cases been unable to l those who have already taken the diploma in geography have already received appoint- e than £950 has now been spent upon plant, tion many gifts have been received. During oks and atlases and 859 sheets of maps have y purchase, and the total addition to the book llection for the year, including gifts, is 328 amphlets and 978 sheets of maps, of which 882 ale maps. The school now possesses 1,898 es, and pamphlets, and 5,732 sheets of maps. ee will welcome contributions to the collections l.

David Salmon, of Swansea, is constantly at origins of our elementary-school system. He engaged in a very interesting inquiry on the Joseph Lancaster *and his monitorial* system in France. The results of his inquiry were first given in a lecture to the West Glamorgan Education Society last December, and have since been published in pamphlet form. The society which supported Lancaster was called the British and Foreign School Society, and Principal Salmon shows that the *Foreign* propaganda was not ineffective. The Rev. Dr. Schwabe, a German, was foreign secretary of the society, and spread the knowledge of "the system" in Germany, whilst in France the Société d'Encouragement pour l'Industrie nationale was ready and keen for inquiries into the English system. A deputation of the French Society was present at the half-yearly meeting of the English Society as early as 1814, and several of the members of the deputation made favourable reports. The following year a society was established in Paris—the Société pour l'Instruction élémentaire—on the model of the British and Foreign School Society, and by the end of the year 1815 Paris possessed five monitorial schools. Mr. Salmon presents us with the astounding information that before the end of the next year there were fifteen hundred monitorial schools in Paris and the provinces. Before 1816 the number of children receiving instruction in elementary schools in France is put at 165,000; in 1820 it is stated to be 1,123,000. "This is a result," says Mr. Salmon, "of which the French Society for Elementary Instruction may well be proud, and for which the British and Foreign School Society, so ready to aid and encourage, may take some small credit." Mr. Salmon does not concern himself with other forces at work in the development of the French system, but he undoubtedly makes good the very interesting relation which existed between England and France amongst the educationists at a time when the two nations were on the verge of a struggle to the death, politically.

At a conference held on June 15th at the offices of the National Union of Teachers, between principals of university, residential, and day training colleges, and representatives of the executive of the Union and of the Pupil Teacher Centre Teachers' Federation, the following resolutions were adopted: (1) "That the university course be open to all matriculated students who satisfy the college authorities that they are able to profit by such a course without loss to their professional work." (2) "That students who have followed in college a university course shall be required to take an examination in a degree course, either during or at the close of their period of training; should a student fail to pass such examination, then his recognition as a certificated teacher shall depend on the report of the training college authorities on his work in college." (3) "That it is undesirable on educational and other grounds, whatever necessities may under the new regulations be forced on local authorities, that teachers should be made liable by bond to serve for a certain number of years in any particular locality." (4) "That it is important that the training colleges should be open to students from the whole country." (5) "That it is desirable to provide that the obligation of the student's declaration may be met by a definite term of service." (6) "That this obligation of service may be discharged in any State-aided or rate-aided school." A short discussion took place upon the desirability of training students for service as teachers in primary and secondary schools side by side.

The Book-List of 1907–8 for the Young People's Section of the National Home-Reading Union is now ready, and may be obtained from the secretary of the Union, Surrey House, Victoria Embankment, London, W.C. This list has been extended in order to give teachers a wider

choice of interesting material, the Union desiring to meet the needs of children in all conditions of life. Low-priced books have been selected mostly, therefore, consistently with their educative value and their suitability for young readers. Teachers in secondary and elementary schools will find the Union's courses of reading very helpful. The objective of the Union being self-activity in the form of home reading of sound literature, it wishes to increase the effectiveness of the reading lesson in the schools, and not only to broaden school education generally, but to prolong and confirm its influence.

THE Highland Railway Company has just issued an "A.B.C. Guide" which supplies all information likely to be required by a teacher proposing to visit the Highlands of Scotland. Fares are set forth in detail from all important railway stations in England and Wales to every station on the Highland line. Particulars are given of numerous circular tours by rail, steamer, and coach. A full list of free fishings and of golf courses is also included. A series of excellent photographic reproductions of beauty spots on the Highland Railway adds greatly to the interest of the guide. Copies may be obtained from Messrs. W. T. Hedges, Ltd., Effingham House, Strand, W.C., post free.

TEACHERS of geography who are purchasing wall maps would do well to examine the recent lists published by Messrs. George Philip and Son. A large variety of school-room maps is described in one list, and the large illustrations give an excellent idea of the maps themselves. A second well-illustrated pamphlet deals with a wide selection of atlases and sheet maps. Several novelties in map mounting are also explained in the catalogue.

THE Civil Service Commissioners announce an examination for fifteen appointments as assistants of Customs, commencing on August 27th. The latest date for making application is August 8th.

A MEETING of the London members of the Historical Association will be held at University College, Gower Street, W.C., on July 6th at 3 p.m., to consider the advisability of forming a London branch of the association. Mr. G. Laurence Gomme will read a paper on "History and Anthropology." Further particulars can be obtained from the secretary of the association, 6, South Square, Gray's Inn, W.C.

SCOTTISH.

IN the prefatory note to the Memorandum on the Teaching of Arithmetic in Primary Schools, issued by the Scotch Education Department, it is stated that the memorandum is not put forward as a final or authoritative document, and that criticisms and suggestions will be welcomed. We sincerely hope that teachers will accept this assurance as genuine, and that a new era of intelligent and sympathetic co-operation between educational authorities and teachers is being inaugurated. The aim of the memorandum is rather to indicate leading principles than to formulate a definite scheme of instruction; it is to be hoped that teachers will be granted a corresponding freedom in the preparation of detailed syllabuses, and that they will be allowed to deviate from these when the capacities of their pupils demand such departure. As regards the memorandum itself, the views it expresses will, in the main, be accepted by most teachers as sound and practicable, though possibly emphasis will not always be placed on the same things. Thus, we would emphasise more strongly the suggestions under Multiplication Table on p. 4. Again, *we think the principle involved* in the first sentence of the *paragraph on series of equal* fractions (p. 6) should be made much more prominent; it is the cardinal p operations on fractions. The least satisfactory memorandum, in our opinion, is that which tr general case of converting vulgar into decimal the process should be taken up as a case of appr of which it forms one of the best examples. have liked to see a caution against the reckl the word "answer." As a check, the habit out the leading words of the question in con when giving the answer is very valuable, and useful to make the pupil quite familiar with th between a sum and a product, &c.; it is too custom to label all examples as sums. The m as a whole deserves the careful consideration c the more carefully it is studied the better will t of arithmetic become.

THE annual report of the Scotch Education for the year 1906–7 has now been issued. The children on the roll for the past year was 806,7 number in average attendance 706,062. Accorc estimated population, there should be about 944 registers and 787,000 in average daily attenda means that for every 100 children who might registers, and for whom accommodation is pro are only eighty-five scholars on the roll and sev daily attendance. The Department seems to pessimistic as to these figures. Considering children are not sent to school until six (very think), the number who are ill at the variou unable to attend, and the number being educat or out of the country, the above figures shou cause for despondency. It is specially sati note that the average attendance, 87·52, is the record, though it is probable that this is in la accounted for by the exceptionally mild wi year's backward and trying spring and su already seriously reduced the average attendar schools, so that next year we may be prepared siderable fall in the percentage. It is of inter from the report that savings banks have bee 228 schools, the amounts standing to the cr pupils being £9,798. There are school librar schools, with an aggregate of 333,000 books. factory to find the Department making due ackn of the generosity of Mr. James Coats, jun., of providing libraries for schools in the Highland districts generally. No benefaction in recent fulfilled so admirably the objects at which it a has been more appreciated, and none has been a more complete absence of ostentation and pub number of certificated teachers is given at 14,08 4,737 are men and 9,347 women; 81·67 of th 58·4 of the women have undergone a course of the normal schools, and of the whole number 1,687 are graduates in arts or science.

DUNDEE School Board has resolved to "vacation school" on the lines so successfully in America. The management of the school i the hands of a committee representative of Board, the Town Council, and the Social Unic expenses of administration will be met by vol scriptions. The main idea of the scheme is healthy amusement for the children in the par take them into the country or down to the occasion permits. In the event of bad weather t will be gathered into schools set apart for th The work there will be entirely recreative, emb

singing, drill, dancing, sewing, and manual Dundee is to be congratulated on this forward which might well be followed by other cities. is of city slum life are so utterly opposed to mentary notions of how children should be hat the heartiest sympathy and support should very effort that will, for even a short time, from their surroundings.

for Continuation Classes which has just been ns no changes of importance. Several minor have been made, all directed to give greater elasticity in the working of these classes. It aid down that the normal length of the session t less than twenty weeks. If it is proposed to give less, the circumstances in which the n is thought desirable should be fully stated tment. Article 3, which assimilated the in- Division I. to a well-arranged supplementary rther extended by the addition of a clause teaching of any other subject that may obtain of the Department.

tional Institute of Scotland has forwarded a on the Education Bill to the Secretary for to the Scottish M.P.'s. It is pointed out tute, representing more than 11,000 teachers, im to speak in the name of the teachers of ie Bill, as a whole, comes in for very favour- t. The provisions for the medical inspection he feeding of children, and the compulsory pupils up to seventeen years of age, are oved. The Scottish Secretary is cordially the clauses dealing with superannuation, and ly for the promised additional parliamentary towards pensions. Regret is expressed that not propose to improve the tenure of office y providing for an appeal to the Department arbitrary and capricious dismissal, and the essed that, during the progress of the Bill nittee, this point may be considered.

tment, after reconsideration of the question the date of the Leaving Certificate examina- cided in favour of the alteration. The ex- 1908 will begin on Tuesday, April 7th, and dnesday, April 15th. The Department, in the ncing this decision, adopts its favourite urging all who opposed its views with being bscurantists who are hopelessly out of touch educational ideas. It sets up bogey objec- own creation, and then proceeds to knock The change being now *un fait accompli*, it repeat the *real* arguments against it. They crystallised into hard facts in the course of years.

is taken of the alteration in date and the the honours paper to effect a redistribution in such a manner as to relieve the strain ach a long examination. The higher English en up into three parts, the second and third ll be devoted to history and geography re- The Department may probably issue specimen last-named subjects in order to give teachers guidance.) In Latin, Greek, French, and will be substituted for the single higher grade ree hours' duration, two papers, for each of urs will be allowed. In French and German, the higher grade will have a dictation test eir paper.

THE Edinburgh University vacation courses, which proved such a marked success last year, will again be held in the University during the month of August. The courses embrace lectures in French, German, and English, the language and literature of each receiving ample consideration. The staff includes no fewer than forty professors and lecturers, some of them with a European reputation. The month's course will consist of sixty-two to eighty-four lectures and lessons in each language. Full particulars may be had from the honorary secretary, Prof. Kirkpatrick, Edinburgh University.

IRISH.

THE Government's failure up to the present in the field of education is remarkable. Last year the English Bill went by the board, and this year the Irish Bill has disappeared far more swiftly and dramatically. For the Irish Council Bill was mainly an Education Bill. It was to the education clauses that Mr. Birrell said he attached the greatest importance, although the feature which seemed to attract public attention was what has been called devolution. The Bill proposed to unify the Boards of Primary and Intermediate Education, to abolish results' fees, and to co-ordinate their work. The merits of the Bill are not our concern here, nor whether the Nationalist Convention of Whitsuntide in Dublin was politically right or wrong in rejecting it; but the solid fact remains that a Government has at last made proposals for improving education, and was willing to make a grant to Ireland of £650,000, part of which would have been available for this purpose. We have, therefore, two admissions: (1) that the time is ripe and over-ripe for reform, and (2) that further funds are necessary. In the light of this there is no reason why wide administrative changes should not take place in Irish education, both primary and secondary, by which large improvements would be secured in the immediate future without waiting for a further Act of Parliament.

ANOTHER Government project for educational reform has for the present been even more unfortunate. Mr. Bryce's scheme for remedying the grievance in university education has died still-born, and has never even been introduced into Parliament. It has for some time past been apparent that this would be the case. The Prime Minister's statement in the House of Commons on this matter was somewhat vague, but it conveyed the impression that Mr. Bryce's scheme was abandoned for good, as he explained that Mr. Birrell would in the autumn spend his time in Ireland endeavouring to reconcile opposing interests and to discover a scheme which would please, or at least not displease, all parties. This is difficult; but the main elements of the problem are these. The Roman Catholic hierarchy will accept any one of three solutions: a separate university with a Roman Catholic atmosphere, a new college under Dublin University, or a new college under the Royal University, both the latter being, of course, practically Roman Catholic. Of these, the first is admittedly unfeasible for political reasons; the second, in the form of Mr. Bryce's scheme, has met with strenuous opposition from Trinity College; it remains to be seen whether a new attempt will be made on similar lines more likely to win favour from Trinity, or whether Mr. Birrell will fall back upon the third scheme, which seems to be the line of least resistance. The Government, however, has promised a new Bill for next session.

IT is a remarkable fact that during the past few years more and more attention is being given to secondary education in Ireland. Recently, no National Convention seems

complete without a resolution like that at the last meeting, "that the present system of intermediate and primary education stands in need of serious and immediate amendment, and that we desire to urge on the Government, in the strongest possible manner, the necessity of bringing it into consonance with the wants of the people and the requirements of the country, and of extending to it more generous and just financial assistance than it has yet received." Another sign of the times is the appearance in the *Northern Whig* of Belfast of a series of weekly articles dealing with intermediate education. These are published in each Saturday's issue. The first, dealing with its general condition, directed attention to the much-neglected report of Messrs. Dale and Stephens, advocated inspection, the abolition of payment by results, the establishment of registration, and a strenuous effort to raise the teaching profession to a position of honour and respect.

THE report of the Lord Lieutenant dealing with the Ireland Development Grant Act, 1903, for the financial year ending on March 31st, 1907, has been issued, and shows how this fund stands and how a fund voted to Ireland as an equivalent for a similar one for education in England has been transferred mainly to other objects. The balance from 1905–6 was £136,000, and the annual Parliamentary vote £185,000, making a total of £321,000. Of this, statutory payments to congested districts, land purchase, and similar objects swallowed £133,000. £7,000 was given to the Department for Technical Instruction, £28,425 for cost of assistant teachers in national schools and King's scholars in training colleges, £17,000 towards building grants for Marlborough Street Training College, *i.e.*, about £52,000, or less than a third of the annual grant for educational purposes. Some more went for harbours and railways, making a total in all of £197,000, leaving a balance of nearly £127,000.

SHORTLY after Whitsuntide, Sir Horace Plunkett resigned the vice-presidency of the Department of Agriculture and Technical Instruction, and Mr. T. W. Russell now reigns in his stead. Sir H. Plunkett is one of the most unselfish patriots that Ireland has ever had, and will always have the credit of having started technical instruction and science teaching in secondary schools on a sure and sound footing. The report on the Department's work by the Government Commission has not as yet appeared. Evidence began to be taken on April 30th of last year and terminated on November 23rd.

A MEMORIAL fund has been started in Ireland in memory of Miss Alice Oldham. Miss Oldham was unsparing in forwarding the interests of female education in Ireland, and to her as much as to anyone of her sex belongs the credit of opening the doors of Trinity College to women. It is therefore fitting that her work should be commemorated, as seems likely to be the case, by a prize offered in Dublin University for women students who have studied for at least one year in Alexandra College, where Miss Oldham herself taught for many years. The secretary for the fund is Miss M. Joynt, 4, Oakley Road, Dublin.

THE work of the Classical Association in England is beginning to attract attention in Ireland, more particularly at present in view of the general adoption in England, Scotland, and Wales of the reformed pronunciation. In Ireland we suffer from a variety of pronunciations, and some years ago the temporary inspectors of the Intermediate Board reported on their inherent defects and the very common ignoring of quantities, and recommended the use of some uniform system in schools. Th our intermediate system is seen in this, that of any form of inspection at present it has enforcing any enlightened method of pronun great deal of help could be given to the s universities, and it is encouraging to kn Trinity College and the Royal University a whether the introduction of the reformed pr practicable. Latin pronunciation is, howeve many reforms in classical teaching that requi

WELSH.

AT the last meeting of the Court of the Wales, a report of a committee was re Executive Committee of the Court with regar assistance to students entering on business careers. The scheme suggested the formati mittee for and at each of the colleges, and of these as a university committee with a p secretary. Such an organisation would co information about suitable openings for gr public service and in commerce. The Execu was asked to report to the Court as to t which the above recommendations could be n

THE following resolutions were passed at meeting of the Central Welsh Intermedi Board: (i) "That an application be made t Education for an amending scheme enabli Welsh Board to undertake at the request of tion authority the inspection and examinatio in Wales and Monmouthshire aided or ma Part ii. of the Education Act, 1902." (ii) to the ultimate control of the Board of Educ in the regulations relating to the Treas inspection and examination of the Central be recognised for the purpose of all Imperi to schools inspected and examined under the scheme." (iii) "That the Executive Comr that the system of duplicate inspection of s mental to their educational progress, and be recommended to appoint a committee to interview with the President of the Board A deputation has since waited upon the P Board of Education with regard to the t and it is understood that the deputation rece sympathetic answer.

MR. TOM JOHN, ex-president of the Nat Teachers, has trenchantly attacked the Glamorgan Education Committee. He primary-school equipment of the county stump." After speaking of the necessity of ties mastering the difference between edu struction, Mr. John continued: "I am deep the theologians and the passive resisters everything in the area of the non-provide The policy of starvation has been perpetrate . . . It is time to suspend hostilities an supplies to the suffering children in all sch a significant utterance, and, coming from not only arouse attention amongst teac amongst public men.

IN an application for a post under a Mi tion Committee, a testimonial was read in candidate—a woman teacher—from a minis In the course of his letter the rev. gentle from his brief observation of the candidat

tion in bearing witness to her excellent had a clear understanding, a steady, well- nent, and a reason far removed from pre- as cheerful, modest, and in good humour She never lifted her voice in the streets, firm and resolute, void of all inordinate of tenderness, compassion, and benevolence. beloved by her associates, and left a good them. He was fully convinced that she acquit?) herself with credit in any school, ie committee favour her with the appoint- sure they would have reason to rejoice in With testimony to such gifts and graces of racter, the Education Committee is to be on appointing such a candidate; but it is ect of congratulation that the Education s her a salary of only £50 a year.

signs of the times is the movement in con- raining colleges. Swansea Training College eachers has long been in need of more sion of buildings and equipment, but the btaining funds has been great. Now the mittee of the town is negotiating with the the training college for its transfer to the on the understanding that the committee erect a new college within five years to 200 students, and to take over the staff on equal to the present. An arrangement is eguarding the principles of the British and Society's Royal Charter.

ENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

w German Dictionary. Revised and con- ged by Dr. Karl Breul. xvi+798+545 pp. 6*d.*—It is with genuine satisfaction that we ppearance of this work, after a long period Dr. Breul has for some time past devoted leisure to the revision of this book, putting isks which might well have been thought e. With rare pertinacity and conscientious- iled on, and to such good purpose that the of the dictionary is rather a new book than one, and that it may justly claim to be ian-English dictionary at a moderate price. loubt that the publishers will be amply re- sound judgment in choosing Dr. Breul to work; and Dr. Breul will receive the grati- thousands of students and teachers for what a very difficult and exhausting enterprise. is mainly intended for English-speaking s explains why the German-English section again as the English-German, and why the of English words is not given. We should hat the book might have counted on a con- inental sale if the two languages had re- ttention, and that it could in consequence eased in bulk without a raising of the price. glish point of view, however, the course resents no drawbacks. For those who desire straightforward piece of English into German erman part will probably be found quite l when it comes to translating difficult is no dictionary elaborate enough to make the result will really be first-rate German.

The care given to the grouping of the various meanings of a word is wholly admirable, and represents a great improvement on the older version of the book. A number of words and phrases have been added, and some superfluous ones omitted. The case required in particular phrases after certain German prepositions has been added —a great boon. Due attention has been devoted to the spelling. The only blot on the book is the retention, at the express wish of the publishers, of the "General Rules for the Pronunciation of the German Language" as given in the old version of the book. Our readers will agree with us in deploring this when we mention, for instance, that *th* is described as "merely *t* lengthened," that *d* has "a sound at the beginning of words and syllables between the *d* of *do* and the *th* of *thee*," and that *ts* "should be pronounced like *t-tz.*" Why the publishers should have pressed for the reprinting of such pernicious nonsense is completely past comprehension.

We have delayed our notice of this book somewhat in order to test it by actual use, and it has stood the test extremely well. If we jot down a few points that we have noticed, it is certainly in no spirit of captious criticism. We are sure that another edition will soon be required, and then some of our remarks may be found useful.

Die Angel: add "fishing rod" to meanings; *ausschoten* omitted; *Blüte* (for *Blute*) in headline, p. 117; *Damwild* omitted (occurs in E.-G. part); *Delta*, ditto; *Fahrstuhl*: add "wheel chair"; *Fassade* omitted (occurs in E.-G. part); s.v. *Feder*: add sich mit fremden Federn schmücken, Federwisch, Federwolke (occurs in E.-G. part); *Fessel* in headline, p. 197; s.v. *Fisch*: add Fischkorb (=creel); *s.v. Gift*: add Giftpflanze; s.v. *Haft*: add Haftwurzel; s.v. *Hand*: add Handkoffer (occurs in E.-G. part); s.v. *Hohl*: add Hohlspatel (occurs in E.-G. part); s.v. *Hopfen*: add Hopfen-garten, -feld (occur in E.-G. part); *kanalisieren* omitted; s.v. *Kehle*, l. 4, *ist* for *ift*; *Kronleuchter*= chandelier, rather than lustre; s.v. *Mist*: add Mistkäfer; *Nachtfalter* omitted; *Noten-pult, -ständer* omitted; s.v. *Raupe*: add Raupennest; *Rettungsrakete* omitted; *Schah* omitted (occurs in E.-G. part); *Schildpatt*: read -platt; *Seemöve* omitted; *Skabiose* omitted (occurs in E.-G. part); *Staubfaden*=stamen; *Tiefebene* omitted; *Unkraut* vergeht or verdirbt nicht; *Violoncell* = violoncello; *antennae* omitted; *beehive*: add Bienenkorb (occurs in G.-E. part); s.v. *bellow*: röhren; *coco-nut*, not cocoa-; *daffodil*: add Affodill (occurs in G.-E. part); s.v. *garbage*, l. 3, read zugestutzter; *gasalier*: better -elier; *manger*: add "dog in the manger"; *pitapat* is not=ticktack; s.v. *poodle*: why "two —s, zwei Pudel"?; s.v. *rocket*: read Rakete (as in G.-E. part); s.v. *rose*: add "no rose without a thorn"; *signalman*: add Bahnwärter; *stratus* (cloud) omitted; *trowel*: add Ausheber.

Deutsche Gespräche. Von E. A. Meyer. iv+105 pp. (Leipzig: Reisland.) 1 m. 50.—Phoneticians will welcome this little book, which contains a number of idiomatic sentences with phonetic transcript on the opposite pages. The pronunciation represented is not *Bühnendeutsch*, but the conversational speech of an educated North German, uttered at a fairly quick rate. The book is therefore obviously unsuited for use with beginners, who speak rather slowly. This pronunciation uttered slowly would have almost a comic effect. For advanced pupils, on the other hand, and for the student of language, this record is valuable. There are some ingenious observations in the introductory pages, such as we have every reason to expect from the author of that excellent treatise, "Lautdauer im Englischen."

W. H. Riehl, Die vierzehn Nothelfer. Edited by J. F. L. Raschen. xii+79 pp. (Ginn.) 1*s.*—Riehl's amusing tale of the sixteenth century is not remarkably well presented in this edition. The biographical note gives the more important details of the author's life, but is written in very poor style. The notes contain such elegant Americanisms as "he became enthused, with jarring steps," and the exercises in composition such edifying sentences as: "The irresistible fellow before my scaffolding has truly misied me. After we have chatted a while, I will let your hand go. Carl says his mother is in the habit of calling him by his full name." The vocabulary is not complete.

Heine's Poems. Edited by C. E. Eggert. lxxix+233 pp. (Ginn.) 2*s.* 6*d.*—Taken together with Faust's edition of "Heine's Prose," this volume affords a very good idea of the poet's literary output. The introduction contains good material, but is spoilt by excessive wordiness and poverty of style; a sober-minded Englishman should have read the proofs. We have no patience with editors who pen such phrases as "he asked him at what he was then at work; disquieted by the non-appearance of the notification of the expected appointment"; or words like "carefree, national-patriotic, mattressvault." The discussion of the various books of verse should have been transferred to the notes, as this would have avoided much repetition. The selection is a good one, and if the editorial matter were reduced to half its present bulk and the style competently revised, the book would be quite welcome, especially as it is well printed.

Classics.

Plato's Menexenus. Edited by J. A. Shawyer. xxxii+24 pp. + text unpaged. (Clarendon Press.) 2*s.*—The "Menexenus" offers a difficult literary problem, which fits it to be the subject of an essay rather than a school edition. Did Plato think his formal speech good, or was he parodying anyone? There are objections to both hypotheses, and we are inclined to think that a third may be true—the speech may be really, as it pretends to be, a report. However, Mr. Shawyer thinks otherwise; and he gives his reasons in the preface. The boy who would read the notes to this book would hardly be able to appreciate the introduction. Why is Mr. Shawyer so very hard on the historical mistakes of the oration? He seems to hint that Plato was deliberately cooking history. But how could he have known all those details? There was no Cambridge Modern History in the fourth century before Christ. The rest of the introduction deals with rhetoric and rhetoricians, and contains much useful information. The notes are distinctly good, because they are few and to the point. On the whole, it is difficult to see for whom the book is meant; but one age of boyhood could use the notes with advantage, another might suck profit from the introduction.

A History of Greece from the time of Solon to 403 B.C. By George Grote. Condensed and edited, with Notes and Appendices, by Messrs. Mitchell and M. and B. Caspari. xxviii+812 pp. (Routledge.) 5*s.* net.—This is an attempt to collect those parts of Grote's History which have a permanent value. To this end, the Legendary Period, the Story of the Tyrants, the Fourth Century and Macedonian Period have been omitted, and other parts have been shortened. The specified omissions were made for the following reasons: "Grote was a rationalist; therefore because the science of comparative mythology has made *giant strides since Grote's* work appeared, the Legendary Period has been omitted." Our knowledg Greece has been increased even yet mor would make Grote's account of early tin "Secondly, Grote was an idealistic demo thus a prejudiced critic of the tyrants; chapters on the tyrants and those on t Empire have been omitted." Here again r added to exact knowledge of these topic have, however, kept his account of democracy, because "an author puts his that subject in which his real interest lie history of Sparta has also been omitted, much of his work on Greece other than colonies, on the great festivals, and on the Political evolution is the main subject of must be admitted, however, that here Gro as in his account of the tyrants. In the notes have been added referring to books w will find useful. An introductory chapter fixed, tracing the history of Athens before grant their premises, the editors have d well; but it is not easy to see for who intended. The serious student will not b only a part of Grote; even where he is mis must still be taken into account. The sch graduate, again, will want a more compl of the history on modern lines. The poli thinks himself wiser than to be taught Greece. But the volume is very cheap, ar buying by those who do not possess the wh

Josephus, being the Autobiography and the Jewish War. Edited, with Introduc Winbolt. xxiv+248 pp. (Blackie.) 1*s.* hearty welcome to this little book, which useful reader, to be taken in conjunction scripture lessons. The translation is Whis by Dr. D. S. Margoliouth. A chrono Josephus's life is prefixed, another of the of the relations between Jews and R 71 A.D., and a tree of the Herods. O criticism is that there should have been a

Greek Lives from Plutarch. Newly tra Byles. Theseus, Lycurgus, Aristides, Pericles, Alcibiades, Dion, Demosther viii+232 pp. (Arnold.)—We are glad t sign of interest in Plutarch, and especially restore him to the schoolboy. These lives shortened by omission of political digres matters supposed not to be useful for the s are explained in footnotes, where also added from English poetry; and the pro very brief descriptions, are given in an ir difficult Greek names are accompanied by which is meant to show how they are current English speech; in order, as the prevent the pronouncing of Pericles and riming with *clericals* and *cockles*. In th ties are marked in an erratic way, only being marked which the editor thinks li nounced wrongly. (But why Hĕrodotus?) style is colourless, but also unpretending affectation or infelicities. We think this recommend, although we do not agree with North would not have been better. V desirable to restore the periodic sentence t and nothing can make up for the loss vivid language of the older world.

s of Paul to the Colossians and Philemon. Lukyn Williams. With Introduction and +208 pp. (Cambridge University Press.) : nine pages of text to 272 of commentary! commentaries on St. Paul's Epistles involve ult and important questions, that they cannot briefly. It is true, however, that there is a epetition in these books, each of which seems as though it were the only book in the a waste it is, for example, to repeat all ions of the MSS. and Versions! What we s a handbook or handbooks: one collection the language and interpretation of all the sible into parts; one or more on the topics tory, on the composition of the Epistles, their nd their relation to each other. This edition o be full of learning and good sense, and to companion to Mr. Bernard's edition of the

rcises in Continuous Latin Prose. By antin. xii+310 pp. (Macmillan.) 3*s.* 6*d.*—print of Macmillan's Latin Course, part iii., needs no detailed criticism here. A brief ly expressed, comes first; then the more tegories, each accompanied by exercises: first, leading up to continuous prose. An vocabulary, tables of irregular verbs, and numerals complete the work. Mr. Pantin teacher of experience, and the book is good it would, however, take a rather long time ugh, and the subject-matter of the exercises rom the boy's experience. Sentences unuseful, as helps, but they are very dull, and n our opinion, be made the main vehicle for atin.

History.

of Ancient Irish Civilisation. By P. W. 175 pp. (Longmans.) 1*s.* 6*d.* net.—There is is being discovered nowadays as to the virtues f what used to be called the "Celtic fringes" nds, and Dr. Joyce is such an authority on nd (is he not President of the Royal Society s, Ireland, besides an M.R.I.A., &c.?) that t venture to cast doubt on the truth of st glowing account that he gives us of the e civilisation of Ireland in the ages when were but ignorant heathens. Therefore, he absence of the proofs which are in Dr. r books (of which this is but a summary), we ntirely convinced, we can very heartily comok to all who would like to read for themeir pupils a delightful account of un-Anglicised monasteries and missionaries, its kings and that old-time Eden of the west.

of History. Book I., 126 pp., 10*d.*; Book II., Book III., 192 pp., 1*s.* 3*d.* (Nelson.)—These each covering the whole of Brito-English written on the "concentric" plan, illustrated d and other pictures, reproductions for the pictures by famous artists. The letterpress is written mainly in connection with the pictures. there are summaries of the lessons, and in e illustrative poetry. The idea is not so new the publishers seem to think, but the books their kind. The stories are, of course, not accurate—legend is mingled with authentic history—but they are well adapted, in the hands of a good teacher, to the little ones for whose use they are designed.

Notes of Lessons on English History. Book I., 55 B.C.–1603 A.D. 176 pp. (Pitman.) 3*s.*—This is a curious book. Its pages are divided into three columns, each about an inch and a half in breadth, and containing respectively "heads," "analyses of lessons," "teaching hints, &c.," the last consisting partly of what is implied in the title (*e.g.*, "Bring this out clearly—a point very often overlooked"), partly of references to books, and cross-references. The last sixteen pages contain poems on English history, two by Drayton, the others of modern times. It might be useful for some teachers; others would be either amused or annoyed by its platitudes.

A School History of Lancashire. By W. E. Rhodes. xii+215 pp. (Methuen.) 1*s.* 6*d.*—This, like other books of the series, is well and plentifully illustrated with photographs, maps, and other presentations. The letterpress is clear and interesting. The author speaks of the geology, the earliest inhabitants, and everything connected with the county down to the present day. He wanders even into the story of earls and dukes of Lancaster, whether connected or not more than in a titular way with the county.

Geography.

(1) *N. America.* By H. J. Mackinder. (Stanford.) 52 in. by 60 in.; mounted on rollers and varnished, 20*s.*

(2) *England and Wales. A Simplex Wall Atlas of Five Sheets.* (Johnston.) 38 in. by 30 in.; metal bound and canvas backed, 15*s.*

(3) *A Series of "Model Test Maps."* (Philip.) 28 in. by 34 in.; 17*s.* 6*d.* net.

No. 1 is the last issued of Stanford's well-known "new orographical" series, of which we have already reviewed Europe, Africa, Palestine, and Asia. We have nothing really to add to our summary of this series in the geographical portion of the article "Recent School Books and Apparatus" (*v.* THE SCHOOL WORLD, January, 1907). "Accurate and pleasing; well worth getting," we say now, as then. For the benefit of those teachers who may not know the maps, it may be well once more to point out the main features, viz., deepening tints of brown and blue for heights of land and depths of sea; grey lettering to keep the names in due subjection. We still think there are too many names for class purposes; why, for instance—except for sentimental reasons—should our antiquated friends Brown and Hooker still masquerade among the important peaks of Canada? With the map, as with its predecessors, the publishers issue a descriptive broadsheet of what to look for on the map, which is in itself an excellent epitome of the physical geography of the continent.

Nos. 2 and 3 are wall atlases ready prepared for hanging on the blackboard. "England and Wales," on a scale of twelve miles to the inch, comprises five maps showing the physical and political features, the railways and industries, and closes with a test map, which we think the best of the five. In the physical map, though the triangular divisions of river drainage are well indicated, we miss the coloured but simple contours which class teachers want; on the political sheet there are altogether too many names; the railway-map is inaccurate even for diagrammatic maps (*e.g.*, Settle is shown on the wrong "fork" of the Midland, and Bradford is connected with Shipley by L. and Y., or G.C.R., instead of by the M.R.); while the industrial map is merely a collection of product names, plus the

coalfields, printed over a plain-tinted area of nothingness interspersed with rivers and railways.

No. 3 is a very pronounced set of somewhat crude maps enlarged from the "Model Atlas" published by the same firm. This particular set ("Set 2") includes Europe, Central Europe, Austria with Italy and the Balkans, Asia, India, Australia, S. Africa, and British N. America with U.S.A. The maps are photographic reliefs, printed in vivid blue and photographic purple. They are therefore very striking, but suffer from the obvious defect that they make everything appear too mountainous. The Great North Plain, for example, seems to have disappeared entirely from Europe, and its place is usurped by a most rugged and forbidding country. The river valleys are also enormously exaggerated. We calculate from careful measurements that the Tiber (on the map of Europe) is ten miles wide everywhere from source to mouth! Apart from this somewhat false impression produced, the maps would be useful in the hands of a good teacher. He could show with absolutely telling clearness how the rivers are the easiest highroads into or out of a country. But his pupils would need good school atlases for corrective purposes, especially as the "Model Test Maps" show neither scales nor latitude and longitude.

Mathematics.

Murray's School Arithmetic. By A. J. Pressland. viii+207+(Answers) 40 pp. 2*s.* 6*d.*, or without Answers 2*s.*

Supplementary Exercises to Murray's School Arithmetic. By A. J. Pressland. 84 pp. 6*d.*

This text-book is stated to be designed for pupils between the ages of ten and seventeen, and it furnishes ample material for the arithmetical training of such pupils. In several respects it differs from most of those in common use; the tables have been greatly simplified by the omission of the less important units; processes that depend on "peculiar commercial or social practices have been curtailed," and for good reasons, as we think; great attention is bestowed on such matters as approximations, checks, and rough estimates; special chapters contain applications to geometry, to commerce, and to physics, as well as to the connection between algebra and arithmetic. What is considered to be a novel feature is the inclusion of examples for discussion between teacher and pupil; whether the discussion of methods be a novelty or not, it is in any case a most valuable exercise, and the material is here ready to hand. The changes seem to us to be all in the right direction, and the book is a good piece of work that merits the careful consideration of teachers who wish, not so much a treatise on the principles of arithmetic, as a book that contains sensible examples arranged in a sensible manner. The Supplementary Exercises are drawn up on the lines of the text-book, but may be used independently of it.

Arithmetical Exercises for Junior Forms. By R. B. Morgan. Book II., viii+79–157+(Answers) xxvii–xliv pp. (Black.) 1*s.*—Book I. was noticed in THE SCHOOL WORLD, vol. viii., 437. Book II. consists of four sections, which treat respectively of unitary method and decimals, factors and prime numbers, vulgar fractions, recurring decimals and decimalisation of money. The exercises give ample practice in the respective rules, and are usually of a sensible character. The explanations do not strike us as being specially useful; for the teacher they are rather out of place, while for the pupil they are often little more than a statement of the rule which he will probably have obtained otherwise. There are, however, good these explanations, and particularly the insiste checks.

Pitman's "Method" Arithmetic. 324 pp., 67 pp., 2*s.* 6*d.* net.—The seven parts into wh book is divided have been noticed as they a SCHOOL WORLD, vol. viii., 277, 398, 437; v While the questions are generally of a kind t can understand, they are too exclusively, we concrete character. Whether pupils like it should be drilled in purely mechanical operatic for such drill might well be included in a book 324 pages. Many of the questions are first-rat the absence of other kinds of questions that w

Pitman's "Proficiency" Arithmetics. Part paper 2*d.*, cloth 3*d.* Part iv., 48 pp., paper Answers to Part iii., 8 pp., cloth 3*d.* net. These books belong to the series noted on p SCHOOL WORLD, and extend the work taken i. and ii. The "concrete" character of seems to us to be overdone.

Elementary Solid Geometry, including the of the Simpler Solids. By W. H. Jackson. (Arnold.) 2*s.* 6*d.*—Solid geometry has proba the place in school teaching that its importa the meagre treatment given in that part of Eu book that was long the only readily accessibl quite inadequate for the subject. It is greatly that fuller attention should be given to a sid that is of very great importance for the mather and that can be made of real value to the leanings are not decidedly mathematical. I tively short compass this text-book supplies theorems of solid geometry, arranged in an several respects is better than that of Euclid, with demonstrations that are as rigorous as ing sections are included that treat of suc the theory of perspective, of symmetrical Euler's theorems of polyhedra. The mensu simpler solids is discussed with as great probably desirable at the stage which the have reached. The concluding chapter, on contains matter that is usually found only spherical trigonometry. The book is numerous excellent examples, and is altogethe good piece of work.

A First Year's Course in Geometry and Ernest Young. Parts i. and ii. viii+10 1*s.* 6*d.*—Part i. furnishes a combined cours and physics, the physical element consisting ing out by the pupil himself of the meas lead up to the geometrical properties of v Part ii. contains a course of geometry. The ample material for experimental work in gives comparatively brief instructions for mathematical instruments or for the perfor exercises and experiments, leaving these to the teacher. On p. 14 the statement is m your measurements had been made with g you would have obtained 3·14159 as the r calculations in Ex. 12." Is there any rec ments that yield this value of π?

Practical Mathematics. By John Per (Wyman.) 9*d.*—The six lectures delivered to in 1899, and published under the above title

, and form by far the best source of informa-
the author's views on the teaching of mathe-
is useless to say more now than that in this
y errors which had crept into the first issue
eliminated, and that teachers, especially those
agree with the author, would do well to make
amiliar with the contents of these lectures, and
exercises at the end of the book.

ical Papers. Edited by E. J. Brooksmith.
) 6*s.*—This volume contains the mathematical
idmission into the Royal Military Academy and
Military College for the years 1897–1906. The
so well known to teachers and is so useful
fficient to direct attention to its publication.

Science and Technology.

on Lessons in Plant Life. By F. H. Shoosmith.
. (Charles and Dible.) 3*s.* 6*d.*—This book
xcellent material for "object lessons" on
ints. Each lesson is illustrated by a page of
hite on black, which will give useful ideas for
work. The book may be confidently recom-

ore: June, 1906. By F. H. Shoosmith. 32 pp.
d Dible.) 1*d.*—The attention of teachers may
to this little monthly reader. In town and
ools alike it ought to prove useful.

Study Geology. By Ernest Evans. viii+272
nschein.) 3*s.* 6*d.*—This book is based on the
llabus of the Board of Education, and will be
istworthy guide to that examination. For the
the book covers the usual ground in the usual
contains, however, a good description of field
e Ingleborough district, as well as instructions
er of useful practical exercises.

ol Journey. By J. H. Cowham. 79 pp. (West-
hool Depôt.) 1*s.* net.—The first half of the
sts of an account of a school journey from
Godstone, annually taken by the students of
nster Training College. Following this are two
ourneys described by Messrs. G. G. Lewis and
shaw respectively. The descriptions are full of
nts which teachers in any part of the country
ible to turn to good account

Pedagogy.

ner of Psychology," by Miss Brackenbury
–120 pp., 1*s.*), very clear and very much
shows on almost every page a resolution to
ng to say to physiology. "As psychologists
l series do not concern us." We wonder if in
s' time the psychologists will be so positive.
in an interesting passage analyses the states
at go to the tying of a loose shoe-lace. Would
have differed if a friend of the writer's had
falsely, that her hair was coming down? and
ould a real or imagined personal discomfort
the motive cause of every single action? We
ant psychology: but we are shortlived, and
books group the problems of the interchange
n, idea, and ethic (the visible body and its
ritance being before us all the time), we fear
will profit little. One sentence of Aristotle,
urnt into the memory, will in the meantime
serve us well. The book is clear, its questions are suggestive, and it forms an admirable companion to others in this series.

"The Secret of Herbart" is, we take it, a Rationalist Press Association reprint (6*d.*). Dr. F. H. Hayward is known as an enthusiast, and, on non-ecclesiastic lines, he pleads eloquently for an apperceptive many-sided interest. "Satan finds some mischief still for idle hands to do"—this thought was known long before Herbart. But the examples of Alcibiades, Sir Francis Bacon, and Napoleon, who surely were all Herbartian, show that the secret may be learnt without its leading to the very moderate ethic possessed by the ordinary man. "The evil that I would not that I do." But the book is written *fervente calamo*: and teachers need all the enthusiasm they can pick up—from themselves or from any other quarter. They are invited by the Moral Instruction League (6, York Buildings, Adelphi) to peruse a new edition of a "Graded Syllabus of Moral and Civic Instruction." Everyone now knows the League and its objects; but so far, it seems, no country has definitely decided that virtue can be taught so as to issue in practical advantage without a definite attention being paid to the national standard of ethics. Even Japan builds on a fantastic creed. One may constantly find persons who can lecture on justice and hygiene, and yet by day and by night keep their windows shut. Behind our knowledge and even practice of the right, behind our good habits (formed, it may be, at school and forgotten outside), are these secret enemies of dæmonic energy. Can the League discover and do battle with these?

Prof. Lloyd Morgan has rewritten his excellent "Psychology for Teachers" (E. Arnold, 1–306 pp., 4*s.* 6*d.*). Its greatest value is that it is not intended for examination purposes. It is full and lucid on the ways of thought. There is at the end a fine chapter on Character and Conduct, and the chapter on English Literature (which seems to have got by mistake into a psychologist's work) is an eloquent "æsthetic appeal." When will the teachers of any country learn from writers like this that we "live by admiration, faith, and love"? Surely it is rare to find an accredited psychologist quoting Watson's hymn—

> "Trees in their blooming,
> Tides in their flowing,
> Stars in their circling
> Tremble with song.
> God on His throne is
> Eldest of poets;
> Unto His measures
> Moveth the whole."

A book on "Exposition in School," by T. C. Mitchill and G. R. Carpenter (The Macmillan Co., 1–372 pp., 3*s.*), treats of the advanced essay. It is as interesting as it is quaint. "How to put up the hair in a Psyche knot, how to prepare a clambake, how to become a good pitcher, stealing second base, Hazing's dark side and how to run a stationary engine" (these are essay subjects taken haphazard), would give some of us food for thought. The impression left by the book is that there is greater freedom in the choice of subjects and greater power in dealing with them in American schools. The advice is thorough and good. But "Note-taking," by A. T. Robinson (Heath, 1–24 pp., 9*d.*), seems unnecessary. Examples are given of good and bad note-taking. Must not the student in this suit his own idiosyncrasies? And nothing is said of the useful practice of taking mental notes. It is quite

easy to teach students how, without pen or pencil, to remember a lecture and miss no salient point.

"Natural Elocution," by Hardy Flint (Blackie, 1–72 pp., 1s.), is a very sensible little book written by someone with experience. It is a plea for the expression of natural emotion. The phonetic transcript should be normalised, and the fact that the book is obviously written for Irish pupils might be hidden.

"Eyesight in Schools," by C. C. Caleb (W. Dawson, Fetter Lane, 1–80 pp., 1s.), is in every way an Indian production. The author, who writes from Lahore, is evidently well acquainted with the surgical and anatomical sides of his subject; yet he does not advocate, any more than we do in England, that the eyes should not be worked so hard. It is a far cry from Lahore to the country schools of the States ("Among Country Schools," by O. G. Kearn; Ginn, 1–366 pp., 5s.), for which in a very original book the author pleads very strongly. The questions raised do not affect us here, unless our farmers think of bestirring themselves: but anyone wishing to look at a type of school and a type of teaching absolutely new would be repaid by the text and the innumerable photographs. A startling table on p. 312 seems to say that one half of all the children entering the U.S. public schools have *one year's teaching only*, and then "drop out"; while bread-winning begins for the child at ten. Yet nearly all the books we are now considering come from America, about which great country and its child-labouring population one may read in Mr. Wells's "Future of America," pp. 149–164. Yet, untroubled by such things, educational books pour from the press.

"Principles of Secondary Education," a text-book, by C. de Garmo (Macmillan, 1–298 pp., 5s.), is, presumably, intended for students. There is admirable material for discussion, though, as in most American books, a good deal of the vocabulary is unintelligible to us. We wonder why none of these books touch on the time now wasted in learning subjects slowly. We have, for the study of earthly subjects, no eternity promised us. This book will reveal to the Englishman a view of secondary education with which he will be unfamiliar; a companion volume written on this side would be useful to us—and perhaps to America.

A threepenny pamphlet on the "Special Temptations of Early and School Life" is a reprint of a paper read at Ripon many years ago. Although Dr. C. G. Wheelhouse is the author, and knows the physiological side of the question, little use is made of his knowledge. It cannot be too often repeated that, in the opinion of many parents and schoolmasters, solitary vice will yield to physiological lessons in blunt language and to relentless medical inspection (when necessary) sooner than to the terrifying pleas put forward in the name of religion.

"A Plea for Recreation Evening Schools" (Social Questions of the Day, No. 4; J. Clarke, 1–64 pp., 6d.) points to the necessity of filling gaps in the educational ladder: a ladder that is let down from the roof and grows up from the ground and that is not finished midway is not much of a ladder. The real difficulty is that boys between fourteen and eighteen do not want to come to evening schools. Abroad, they are compelled to come; we, in England, fear compulsion, and thus we throw away with both hands the results of our primary schools.

"The Education Bill of 1906," by S. L. Porter (Macmillan, 1–38 pp., 6d.), is worth keeping on the shelf. The provisions agreed upon by both parties and the contested *clauses are clearly stated.*

CORRESPONDENCE.

The Editors do not hold themselves responsi opinions expressed in letters which appe columns. As a rule, a letter criticising an review printed in THE SCHOOL WORLD *will b to the contributor before publication, so that and reply may appear together.*

The Preliminary Education of Elementary Teachers.

I HAVE read with interest the two articles co the June number of THE SCHOOL WORLD upon the education of elementary-school teachers, writte standpoints severally of the headmaster of school and of a master of method at a training

Without desiring to add very much to the d to the desirability of the new bursary syst restricted and purely educational point of viev to lay further stress upon the undoubted diff beset the adoption of it as indicated in the abo papers, I should like to direct attention to w opinion, is the supreme argument in favour of system, viz., that in matters of conduct and gen no less than in disposition towards his studies, a good secondary school is more mature tha sponding student four, or even five, years o pupil-teacher centre. An encyclopædic swee whole range of the humanities and the wid scientific studies, culminating in a pass B.A., E tion in one of our examining universities, is n only ideal that commends itself to the youth in forms of even the newer of our secondary schoo

If the local education authorities accept, the ment of the secondary schools and training favour of the general idea underlying this scheme, viz., to secure for intending elem teachers a continuous course of not less than a secondary school, it becomes incumbent surel to make the realisation of such a scheme as w able as possible.

To educational authorities such questions qu themselves into a financial concern. There i tion, however, as may be seen from the re recent meeting of the Education Committees' to accept the Government's tempting offer, 1906 training college regulations, for the existing and the building of new training colle this desirable or necessary? The answer r largely upon the view taken of the relative impor very nearly allied problems which are a close c educational authorities, viz.: (1) the provi adequate supply of trained teachers; (2) the imp the quality of their teachers. The question wh was to be sacrificed to quantity might fairly s sight to be the issue between them. But a clos tion reveals that the two problems, so far mutually destructive, are capable of solution single, so to speak, self-adjusting policy.

Let the educational authorities accept boldly quences of their acknowledgment of what is upon them by the new regulations of the Board own experts, viz., that the improvement in the reaching the secondary school is the paramount c in the problem of the preliminary education of school teachers, and let them accordingly dev available funds to the provision of scholarships a and so give all intending teachers as long a

e at a secondary school as possible before entering a ing college. This done, the problem of increasing the r of trained teachers would practically solve itself. For reased supply of trained teachers does not necessitate new buildings, &c., but merely a modification of the nt system.

s a matter of common knowledge among educationists the existing two years' course at the training colleges gely necessitated by the burden that is laid upon them king up for the shortcomings of the old pupil-teacher m. If, therefore, the pupils entered the training col- better equipped on the academic side, as we may safely that they would do, if they all entered as bursars, the most cogent reason for the present two years' course d be removed. A one year's course would be devised, four terms, devoted almost entirely to professional the theory and practice of teaching.

e change would not be very greatly felt in the training es as regards the professional side of their work, already not infrequently maps out as a one year's se.

h a plan would commend itself to the business mind e member of an educational committee, because he readily grasp that without any additional expendi- upon the training college, he would be obtaining double the previous output of trained teachers each

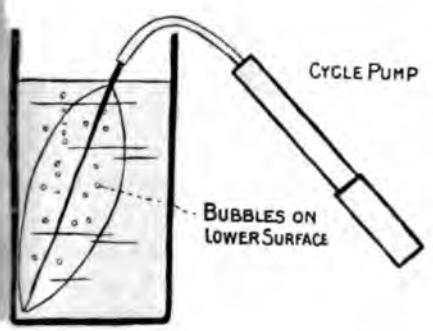
HARVEY WILLIAMS.

rnal College, Bangor.

periment to Show the Existence of Openings on Leaves.

our last issue Mr. E. H. Davies described one method monstrating leaf-stomates; I should like to describe e demonstration, both simple and effective, which found useful, and which may be of use to teachers ve a limited supply of apparatus at their disposal.

rge leaf, a short piece of rubber tubing, a cycle and a suitable vessel of water large enough to rge the entire leaf are necessary. We find that a leaf (indiarubber plant) is suitable, and its large e can without difficulty be firmly fixed into one end rubber tubing, whilst to the other end of the tubing ycle pump is attached (see Fig.). When the leaf



merged and the pump in action, a large number bbles arise from the *under surface* of the leaf and from the upper surface. The bubbles arise from the tes which are present on the under surface in this of leaf.

m this experiment it is evident that the bubbles out through natural openings (stomates) in the leaf- and there is no need for the assumption required by Mr. Davies's experiment, that, because all the joints of the apparatus are air-tight, therefore the air must come through leaf-openings.

Another advantage of this method is that it shows the distribution of the leaf-stomates.

ERNEST E. UNWIN.

The University, Leeds.

Practical Examinations in Science.

IN your June issue (p. 213) we read: "The committee recommends an oral examination in science, and it anticipates that this may some day replace the practical. Practical examinations in science are never satisfactory." We shall probably agree that there is an element of flukiness in practical examinations; that is certainly a reason for amending such examinations, but not necessarily for abolishing them. As to the value of practical examinations, there is *per contra* the "Programme of the City and Guilds Central Technical College" (p. 11) with the proposal: "It is probable that later on the written examination for *Pass* Candidates will be abolished, and that the practical pass examination will become obligatory for all candidates."

If we regard the power of learning from things by original investigation as one chief end of science teaching, then a properly devised practical examination would seem a most useful test.

To ask for crystals of zinc sulphate to be prepared from zinc and sulphuric acid is not such a bad question. It discriminates those who do not dilute the acid, those who do not allow enough zinc or enough time to neutralise the acid, and those who evaporate to dryness. But it is not easy to produce the crystals in less than an hour, and it would be unfair if this were the only question. An examination in arithmetic or history would be called fluky if there were only one or two, or at most three, questions.

The remedy for the practical examinations is either to allow more time or else to shorten the questions, but anyhow to increase the number of questions so that there may be *more separate chances of success or failure*, the accuracy of the total marks varying as the square root of the number of questions. If we spin a penny only twice we do not expect to get just one head and one tail; but when a class of boys are employed to spin pennies for a whole hour, and keep a record of results, the final totals are in very striking agreement with theory.

In a morning paper of three hours, followed by an afternoon paper of three hours, it would be possible to set six questions taking one hour each. But more accurate marks would perhaps be obtained by setting twelve short questions and allowing five minutes for each. Such questions might be:

(1) Write a list of and add the weights on the balance pan.
(2) Read the volume of air in the Hempel burette.
(3) What is the temperature shown by the thermometer.
(4) Draw the crystal.
(5) Neutralise the litmus, &c.

It is extraordinary how beginners lose marks on these easy questions, which prove quite hard enough for marking purposes. Moreover, until good marks are obtained on such elementary questions, it is unnecessary to set more complex quantitative problems.

Another way of saving time in a practical examination is to relegate all calculations to the theoretical paper. Questions requiring some power of designing new combina-

tions of apparatus or planning new methods of experiment can also be dealt with on paper.

The proposal to use school notebooks as a basis for *viva voce* questions will, I hope, receive a fair trial.

HUGH RICHARDSON.

Bootham School, York.

The Pronunciation of Latin.

THREE months ago the Board of Education issued a circular dealing with the pronunciation of Latin in schools. With the first part of the circular it is impossible to find fault. There is to be a uniform pronunciation in each school; long vowels are to be pronounced long, and short vowels short. It is surprising that a rule so necessary to the appreciation of Latin poetry should ever be violated by schoolmasters. Perhaps now we shall in time get rid of the bugbears *lōcus*, *lōci*, and *mīnus*.

But the communication ends with a threat that in a short time a more sweeping reform will be introduced, and urges schoolmasters to begin to comply at once. The English pronunciation of Latin is to be abolished, and no teacher will be considered competent who does not pronounce in what some of us are tempted to call the "new-fangled philological" way. Latin ā = Eng. a in *father*, Latin ē = Eng. a in *fate*, Latin c = Eng. k, &c.

As this reform seems *to us* to be unconsciously prompted by an æsthetic desire to have Latin spoken as it was spoken 2,000 years ago, it would be well to begin by stating the obstacles to such a well-meant effort. It is impossible ever to acquire the exact pronunciation of a dead language. In the case of living languages, where rules of pronunciation have been compiled with almost perfect accuracy, we can never learn pronunciation without a living exponent; how much more so in a case where some of the elementary rules of pronunciation are still open to dispute. It is ridiculous to aim at the impossible. If Cicero or Virgil came into our class-rooms while we were pronouncing according to the *correct* (!) method we should be covered with confusion. But if we were less ambitious and made no pretensions to correctness, we could bid them defiance. That there is nothing to be gained in scholarship (the ability to write and understand Latin) is evidenced by many of our most famous scholars who pronounced in the old way.

But the claims of the modern or foreign pronunciation are said to rest on a philological basis. For it is impossible to understand the history of modern Italian words or of Latin words themselves (*e.g.*, the connection between *claudo* and *clavis*) unless the sounds of Latin letters are given their philological value. Now the average boy for whom it is our special duty to provide will never be concerned with Italian or the history of Latin words. On the other hand, our common English words, the derivation and understanding of which is the main reason for learning Latin in the secondary school, are most easily derived, not from the modern, but from the English pronunciation. It is very doubtful whether the boy of average intelligence will recognise the connection between *civis* and *civic*, *invado* and *invade*, *natio* and *nation*, if the Latin words are pronounced *kēwis*, *inwado*, *natio* (not nashio). And it is uncertain if anything is to be gained for the boy who will carry his classics on to the university. The philological values can be learnt in half an hour at the age of eighteen, but a new pronunciation is apt to discourage young boys.

Last, but not least, we must remember that boys study *French or German as* well as Latin. To accord to Latin a foreign pronunciation is to class it with languages, and nothing can be more fatal. habit of mind involved in the study of Latin is with that involved in the study of modern The grammar and syntax, the structure of tl the general form of thought are so complex, from our own, that the meaning of each sei be hammered out with mathematical precision. the disastrous results when boys make flyin the sense before they have arrived at the lite tion. In French or German there can be n to a fluent paraphrase, for the form of thou same as ours, and there are no dangerous pit in schools where the idea that Latin can be a spoken language is encouraged that we se striking examples of bad syntax, bad gramm paraphrase.

I have said nothing of the schoolmaster change his old methods for new. He is but a where *great* (?) reforms are concerned.

J

A Warning.

WILL you allow me, through the medium of to direct the attention of heads of schools to frauds that is being perpetrated?

A man, who states that he comes from Lahoi at schools and endeavouring to obtain money cipals by means of stolen cheques, which h advance payment of fees for two children for and education he makes all arrangements.

He is of gentlemanly appearance and well e he should call on any of your readers, the doing a service to the public by detaining him send for the police. This is the reason for my to publish a warning letter.

E.

(Lady

Elmshurst, East Finchley.

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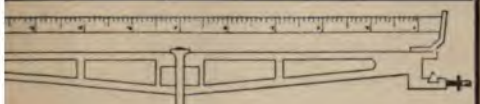

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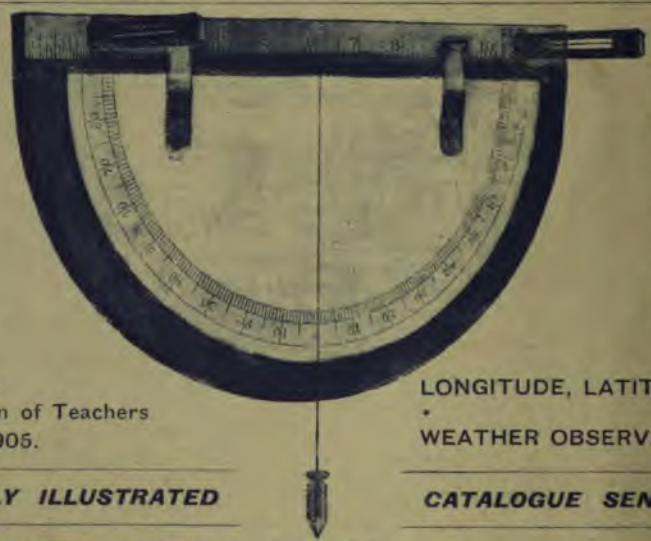

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NEW REGULATIONS FOR SECONDARY SCHOOLS.

McKENNA'S statement in Parliament short time ago prepared us for important evelopments in the State organisation dary education. The regulations now lly bear out the Minister's forecast. The Treasury grant has enabled the Depart- make drastic, not to say revolutionary which cannot fail to have far-reaching n the whole field of national education. attempt has been made to co-ordinate and secondary education by allocating the grant to those schools only which are o offer a large proportion of "free to pupils from the elementary schools. ame time the schools are set free from s harassing restrictions which unduly heir freedom and made satisfactory in- rganisation almost impossible. A sum- the regulations will show the sweeping of the changes introduced.

first place, the schools are to be placed d not nominally under the control of the horities, which are in future to appoint ty of the governing body. No religious be applied to members either of govern- or of staff. No denominational religious on is to be given—except on the written of parents, which *may* be acceded to, in that case the cost of the instruction not to fall on public funds.

conditions will, in the case of nearly all mar schools of the country, involve fresh or "instruments," and the replacement g governing bodies by representatives of authorities.

greater liberty will be given to a school g its curriculum and "special course" with higher grants disappear. It is worthy of note that encouragement in of an increased grant will be given to making special educational experiments by the Board.

t to reasonable restrictions, a school may its own curriculum—it will no longer ssary or possible to select "special science" subjects in order to obtain a higher rate of grant.

The old grants with their vexatious complications and variations disappear, and are replaced by a uniform grant of £5, payable on all boys between twelve and eighteen. This will be calculated terminally, so that a school will get credit for all its work, and will not earn grant solely on those pupils who are accommodating enough to begin only in September and to leave only in July.

The grant will be paid for the full six years of the boy's school life, and no longer be limited to four years. It will be paid, too, no matter where the boy is placed in the school, provided that he is not evidently unfit to profit by the education given. It will no longer be necessary to keep bright boys back or to promote dullards in order that they may be in the proper "year" to earn grants. Boys between ten and twelve who have received their previous education in a primary school will be able to earn a grant of £2, sufficient to cover the loss caused to a local educational authority by their transfer to the secondary school. It is probably safe to say that an "ordinary course" school will receive double its previous grant; the "special course" school will not gain so much, but will suffer no loss; while special provision has been made for small schools by fixing a minimum total grant of £250—a great boon to the small and struggling country grammar school.

In internal freedom the gain is very great—the burden on the headmaster or headmistress will be enormously lightened, and the efficiency of the schools appreciably increased. But there is a *quid pro quo*, and the generous grants have to be paid for. The condition which will excite the greatest interest, and no doubt cause much searching of heart, is the "free place" stipulation. Twenty-five per cent. of the school places must be offered free to pupils who have for two years immediately preceding been in attendance at public elementary schools. The regulations have been supplemented by peremptory directions for the immediate fulfilment of this condition. "Free places," equal in number to one-fourth of the total number of pupils entered during 1906–7, are to be offered next September. Candidates

under ten and over fourteen may be refused; so far as possible they should be under twelve years of age.

An examination is to be conducted by the governing body, which is to be qualifying and not competitive unless the number of applicants is greater than the number of "free places." Candidates are to be reported on by their elementary-school teachers; and in the examination itself it is suggested that the aid of persons of experience in elementary schools would be advisable.

The subjects of examination are to be limited to English and arithmetic, at all events in the case of young candidates. Pupils from elementary schools who are entering the school with scholarships will be counted as "free place" holders. Thus a school of 200 pupils, which admitted 48 new pupils in the course of 1906–7, must in September next offer 12 free places, but is entitled to subtract from the 12 any scholarship holders who received their previous education in public elementary schools.

Will schools or local authorities accept the new conditions? If not, the grant will be reduced to £2 10s., and this will mean that the total grant earned will be about equal in amount to their former grant. There is little doubt, however, that the Board intends to press for the full execution of its scheme. Liberty of refusal is limited to one year only—next year no option may be given. If the conditions are then made compulsory, it is plain that the type of secondary school which will survive is the municipal secondary school with a low fee, or perhaps, as the Board seems to suggest, with no fee at all.

It is a pity that so little time for consideration has been given to the local authorities. Their responsibility has been greatly increased, while their hands have been forced by the very explicit directions as to the method in which the free places are to be awarded. Many local authorities have an excellent system of county scholarships, and an extension of this system might have satisfied all the requirements of the Board. As it is, those local authorities which have awarded sufficient scholarships to fill the required number of free places will not be affected, while those which award a smaller number must apparently adopt a dual system. It is to be hoped that the views of county authorities will be ascertained and due weight given to them before a rigid system is adopted.

To sum up: the scheme is a courageous attempt to provide secondary education for the people. It has been hailed in some quarters as though it heralded an educational millennium. The secondary-school teacher will work wholeheartedly to make it a success. But its success or failure depends on the people themselves. They must make sacrifices to keep their children at school. The English parent has an opportunity now which he has never had before. Will he show himself the equal of the Welshman *or the Scot?*

SOME USEFUL ARITHMETI(DEVICES.

By G. H. BRYAN, F.R.S.
Professor of Mathematics, University Colle Wales.

IN turning over a number of old p time ago, I came across a note on rule for squaring any number," w to *Knowledge* for publication and t thing more about it. From the corr which ensued it was evident that th though possibly as old as the hills (it E. M. Langley's excellent book on ' tion "), was not without interest to read the note. The present article is direct attention to this and other devices of a similar kind. It is not c these devices are new, though the calculating the hypotenuse of a r triangle is not based on any previous has attracted my notice, and is the dodge I have come across for a long

RULE FOR SQUARING A NUMBER.— exact inverse of the process commor finding a square root. It is perhaps that while every boy learns to extract s by the ordinary rule, hardly anyon perform the inverse operation by me ing the steps, although the latter m affords the simplest proof of the r square root.

If we find the square of $a+b+c+d$ may be written:

$$a^2+(2a+b)b+(2a+2b+c)c+(2a+2b+2$$

Accordingly we first multiply a by a, t tiply $2a+b$ by b, then multiply $2a+$ and so on.

To find the square, for example, the process will stand as follows:

```
2 3 7·2 1 × 2 3 7·2 1
2       ×2      =4 0 0
4 3     × 3     =1 2 9 0 0
4 6 7   ×  7    =  3 2 6 9 0 0
4 7 4 2 ×    2  =      9 4 8 4 (
4 7 4 4 1 ×     1=       4 7 4 4
                  5 6 2 6 8·5 8 4
```

The figures in the units' place are thick type, and indicate the position of point. In each line two o's are add where the next line below should com is evident that the method, though wo the bitter end in the above example, c tracted.

We may compare this process with process of calculating the square 56268·5841, and we write the division to make the comparison clearer.

```
  5 6 2 6 8·5 8 4 1 ( 2 3 7·2 1
    4
  4 3 1 6 2
    1 2 0
  4 6 7   3 3 6 8
          3 2 6 0
  4 7 4 2     0 0 5 8
              0 4 8 4
  4 7 4 4 1     4 7 4 4 1
                4 7 4 4 1
```

noted that we subtract in turn
:ts 2×2, 43×3, 467×7, 4742×2,
om the number whose square root is
aving a remainder zero. The number
is thus shown to be equal to the square
)tained by the above rule.

ION OF THE HYPOTENUSE OF A RIGHT-ANGLE, AND ALLIED PROBLEMS.—It is
ed to calculate expressions of the form
or more generally $\sqrt{(a^2+x)}$, where
term is small in comparison with the

tart with an example in which the
the simplest possible; say we have
$/\{(270)^2+(36)^2\}$, that is, $\sqrt{\{(270)^2+1296\}}$.
270 as giving the first two significant
he required result, then 1296 is the
when the square root has been calcu-
r. We merely have to continue the
extracting the square root from this
the work stands as follows, taking 54
divisor:

```
1296  (272·3894
1084
 212·00
 163·29 (Contracted method follows)
  48·71
  43·57
   5·14
   4·91
   0·23
   0·22
```

mple is a comparatively easy one, as
ant figures of the term a are identical
:st significant figures of the required
(a^2+x). This, however, is not the
reat many problems that present them-
an instance, suppose it is required to
$(2732^2+189564)$.
we take 2732 as part of the root, the
: 5464 will go into 189564 over 30
hat the third and fourth figure of the
originally selected for the square
equire alteration. What we shall do
: is to add the results of the succes-
ns to the number 2732 and the cor-
trial divisor, and the work will
llows:

```
or)  5464 | 189564 | 2732 (assumed square root)
isor) 5494 | 16482  |   30 (1st quotient)
or)  5524 |  24744 | 2762
isor) 5528 |  22112 |    4 (2nd quotient)
or)  55324 |  2632 ( 2766·4 (ord. method begins)
           |  221296
thod) 55328|  41904 ( 7574 by contracted division
           |  38730
      5333 |   3174
           |   2767
       553 |    407
           |    387
        55 |     20 nearly.
```

final answer is 2766·47574, taken to a
y more significant figures than would
required.

Explanation of the Method.—The first trial divisor 2732×2 or 5464 goes 30 times into 189564; we must therefore add 30 to the assumed square root, making it 2762, and add 30 to the divisor, making it 5494. Multiplying the corrected divisor by 30 and subtracting, we obtain 24744 as the remainder, when the square root is taken to be 2762, and the corresponding trial divisor is 5524. This goes 4 times into 24744; we therefore add 4 to the square root and 4 to the second trial divisor, so that the corrected square root is 2766 and the corrected divisor is 5528. Multiplying 5528 by 4 and subtracting, the remainder is 2632, and the third trial divisor is 5532. At this stage the ordinary method of finding the square root becomes applicable, and at the next stage we have finished the calculations to five decimal places by contracted methods.

The following application to the case of $\sqrt{\{596^2+29741\}}$ shows that even in the extreme case where all the figures except the first have to be recalculated and the first figure is itself changed by carrying, the method is shorter than the ordinary direct method of calculation. The remainders are alone given, and the work somewhat differently arranged.

Trial Div.	Corr. Div.	Remainder	Sq. root
1192	1212	29741	596+20
1232	1236	5501	616+4
1240	12404	55700	620·44, &c.
	12408	6084	
	.....	.....	

Among the numerous applications to which the method could be put are the following:

(1) To find the length of a line measured up the side of a hill, having given the height of the hill and the projection of the line on a horizontal plane.

(2) To find the resultant when a small force is applied at right angles to a larger one.

(3) Calculation of the roots of a quadratic equation in finding $\sqrt{(b^2-4ac)}$, when $4ac$ is negative and smaller than b^2. (See also next case below, when $4ac$ is positive.)

(4) To find the third side of a triangle, given two sides and the included angle, when one side b is very much smaller than the other. In this case we have $c=\sqrt{\{(a-b\cos C)^2+b^2\sin^2 C\}}$ which may be solved by taking $a-b\cos C$ as the first estimate of the square root and $b^2\sin^2 C$ as the remainder.

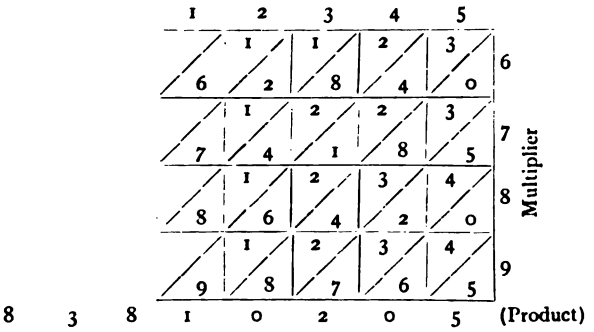
(5) When a string connects two points in the same horizontal line, to find how much the string is lengthened when the middle point is pulled down a given vertical distance.

EXPRESSIONS OF THE FORM $\sqrt{(a^2-b^2)}$ or $\sqrt{(a^2-x)}$ can be calculated by the same rule with suitable modifications, especially when the first term is a good deal larger than the second. In this case, taking a as the first approximation to the square root, the first remainder $-b^2$ or $-x$ is negative. The first quotient is negative, and should be taken to be the smallest number which will convert the remainder into a positive one. After this the methods of the last section apply.

As an example take $\sqrt{(365^2-4000)}$.

1st trial div.	730	−4000	365
	724	−4344	−6 (1st quotient)
2nd trial div.	718·4	+ 34400	359·4788
	7188	5664	
	719	632	
	7192	57	

HINDOO LONG MULTIPLICATION is not so well known in this country as it ought to be. It is mentioned, among other places, in Florian Cajori's "History of Mathematics," 1894 edition, p. 91. As an example take 12345×6789.



It will be seen that the products of the figures of the multiplicand and multiplier are written down in the corresponding squares, the tens figure above and the units figure below the diagonal, and the results are added up along the diagonals, giving the final answer. This plan has several advantages:

(1) There is no carrying except in the last addition; consequently a slip in the work is easily detected, and moreover the multiplication can be performed far more quickly than in the ordinary method.

(2) The multiplications can be performed in any order whatever.

(3) If we wish to carry the multiplication, say, to five significant figures only, we stop at the squares running down the corresponding diagonal. If for any reason we subsequently find it necessary to calculate the product, say, to two more significant figures we only have to fill in the squares down two more diagonals, and add up the corresponding figures without disturbing the previous work.

(4) The position of the units' place in multiplying decimals is easily assigned. For instance, let the above operation represent the multiplication of $123{\cdot}45 \times 67{\cdot}89$. The units' place is determined by the lower figure in the square representing the multiplication of the 3 and the 7; this corresponds to digit 1 of the product, and the answer is 8381·0205.

MULTIPLICATION AT SIGHT.—This method is perhaps rather better known, but still not so well known as it might be. It was shown me some years back by Mr. J. D. Hamilton Dickson, of Cambridge, and I believe was published in *Nature* *by someone else.*

Suppose we have to multiply 246 mentally perform the following proc

Units' place	5×6	=3
Tens 3	carried $+ 5 \times 4 + 3 \times 6$	=4
Hundreds 4	carried $+ 5 \times 2 + 3 \times 4 + 1 \times 6$	=3
Thousands 3	carried $+ 3 \times 2 + 1 \times 4$	=1
Fourth fig. 1	carried $+ 1 \times 2$	=
Answer 33210.		

To verify the method we need only as a case of the multiplication of $2x$ $1x^2 + 3x + 5$, where $x = 10$. In this ca

Constant term	$= 5 \times 6$
Coefficient of x	$= 5 \times 4 + 6 \times 3$
,, x^2	$= 5 \times 2 + 3 \times 4 + 1 \times 6$
,, x^3	$= 3 \times 2 + 1 \times 4$
,, x^4	$= 1 \times 2$

A good many years ago one or m to give public exhibitions, in whic write down the product of two numb ning rapidity, and the above method trick" by which this could be don

The method is particularly usef down products of numbers of two 23×37. Thus:

$7 \times 3 = 21$, 1 carry 2
$2 + 14 + 9 = 25$, 5 carry 2
$2 + 6 = 8$

the figures 851 being written dow from the right as the successive s formed. For numbers of more tha the rule could probably be worked by reversing the digits of one of the is a matter which any reader can ea for himself, personally. I do not r versing the digits in multiplicatio cumstances.

REDUCTION OF A FRACTION TO TERMS.—Exercises involving long some fractions which can only be re lowest terms by finding the G.C.M. and denominator by the long rule becoming less frequent in school cour used to be. If, however, the long r it not necessary to divide the numer nominator by the G.C.M. in order to fraction. The quotients enable the written down at once as a continued this stage some reader may say, " from teaching schoolboys continued quite agree with him, but the exer present method described in the nex pear to be instructive, and it is *not* teach continued fractions in the pre tion.

Take, for example, the fraction 62 process of finding the G.C.M. stands

$$627) 2679 (4$$
$$171) 627 (3$$
$$114) 171 (1$$
$$57) 114 (2$$

The G.C.M. is 57, and the success are 4, 3, 1, 2. If we were to atte backwards, we should reproduce the above sum in reverse order by takin

of operations, starting with 57 in the mn.

tients everse rder		[Operation performed]
2	57	
1	114	[2× 57]
3	171	[1×114+57]
4	627	[3×171+114]
	2679	[4×627+171]

ill be seen that we multiply each num- quotient which we have written on the nd add the number immediately above st two numbers are those of which to find the G.C.M., *i.e.*, the numerator inator of the given fraction.

pose that instead of starting the second 1 57 we start it with unity. Then every number obtained will be to the corre- umber in the above calculation as 1 is l the two last numbers will be the and denominator of the fraction ex- its lowest terms. The operation now ollows :

Quotients	
2	1
1	2
3	3
4	11
	47

ast figures, 47 and 11, represent the or and numerator of the fraction in its ns Since the given fraction is a proper he smaller number 11 represents the and 47 the denominator, answer 11/47. plify the practical working let us take ample, 1196/161.

d the G.C.M. of 1196 and 161 the suc- otients are 7, 2, 3, and the G.C.M., *do not require,* is 23. The process is :

Quotients	3	1
	2	3
	7	7
		52

he fraction is greater than unity the an- 7; or, stopping at the next stage below quotient, 7 gives the integral part and ng two numbers the fractional part; the a mixed number is $7\frac{3}{7}$.

lly, I should prefer to write down the n the order in which they actually occur, vork upwards, starting with unity at the The difference is, however, of no im- s regards the method.

EMENT OF THE RATIO OF TWO LENGTHS.

o not advocate giving boys uninteresting n calculating greatest common measures ying nasty fractions. But the above ken in conjunction with an application suggested to me many years ago by ichols, of Cambridge, may be made the valuable practical training in exact nt which would form an excellent ex- he ordinary schoolboy, requiring no in- whatever. Suppose that he is given of paper or card or rulers of unequal length, which we will call A and B, A being the greater, and he is required to find the ratio of their lengths.

He measures off the length B on A, and finds it will go a certain number of times, say once, leaving a remainder C. He writes down 1, and then measures off lengths equal to C on B, finding that C will go, say, twice, leaving a remainder D. He writes down 2, and then finds in the same way D will go twice into C, leaving a remainder E, and so on. After a certain stage the remainder will have got too small to measure, and we will suppose that at this stage the numbers written down (which are the quotients of the last section) were 1, 2, 2, 1, 1.

The calculation stands as follows, and the ratio of the two lengths is 17/12.

1	
1	
2	
2	5
1	12
	17

Suppose, however, that the boy had made his measurements more carefully, and obtained a further figure, say 10, the result would have been 180/127.

The numbers chosen in this example represent those which ought to be obtained in finding the ratio of the diagonal to the side of a square.

When a measurement has been made in this way, the pupil may measure the lengths of the two lines on a scale of millimetres, and may test the accuracy of his work by reducing the fractions calculated by both methods to the form of decimals, and thus comparing them. A more simple and instructive exercise in measurement it would be difficult to imagine; moreover, it affords an easy test of the relative skill of different boys in making the same measurements.

Since writing the above, I see that there is no necessity to introduce any difficult or advanced ideas in teaching a beginner the method. He only has to call the smallest length he reaches unity, and he can at once see what the other lengths will represent if he reads off the marks which he has made on the actual strips or rules themselves. Taking the second case, where the successive quotients written down were 10, 1, 1, 2, 2, 1, and calling the smallest length G unity, he will at once find for the other lengths $F=10$, $E=11$, $D=21$, $C=53$, $B=127$, and $A=180$.

How to Speak Effectively. By Charles Seymour. Second edition, revised and enlarged. 1-348 pp. (Routledge.) 3*s.* net.—This book, which has received marked approval from the Press, is a collection of rules and illustrations. The rules are useful, and probably a good deal may be gained from them: the illustrative pieces are well chosen and generally unhackneyed. It is a pity that, as the notices say, "clergymen, politicians, and all who have to use their voices in public do not study this subject of clear and good speaking"; but so long as they do not, so long Mr. Seymour's book and kindred books will be published to help them.

THE EQUIPMENT OF GEOGRAPHICAL LABORATORIES.

By A. E. L. HUDSON, B.A. (Oxon.),
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I.

WRITERS on geography have for so long spoken of their subject as being a practical science that teachers are becoming accustomed to the idea; headmasters are advertising for teachers who can apply the newer methods; and there are signs that education authorities are feeling less shy of the expenditure necessary to provide proper facilities for teaching geography. It seems opportune, therefore, to consider what form the provision should take; and it may be useful for those who have to make requisition for equipment to form an idea beforehand of the demands they may reasonably make.

It may be said at once that laboratory accommodation and equipment will be needed similar in extent to those provided for the teaching of physics or chemistry; in the case of geography, however, the initial outlay will be greater in proportion, the cost of "consumables" being relatively small.

FIG. 1.

Schools built in positions commanding a wide view have a great advantage; for them it will be possible either to provide a room with a clear outlook, preferably to the south, the east, and the west, or else to take pupils quickly to a suitable view-point. Even in town schools it should be possible to find a position from which the midday sun can be observed, and the latitude and longitude of which can be precisely determined.

A room suitable for classes of thirty scholars would be one about fifty feet long by twenty broad, having a flat roof, a balcony, or a terrace on which the class could assemble for part of the outdoor work. Such a room may seem unnecessarily large, but it should be remembered that, for any work beyond mere reading and writing, ordinary desk-room for the number of pupils in the class is quite inadequate. A *laboratory* is required, *i.e.*, a work-room where things are to be made and exhibited; and since maps and much of the apparatus used are bulky, and pupils have *sometimes to work together* in groups, the provision of space must be generous. Wit to its height (it is not in these days nec insist on proper lighting and ventilatio is plenty of space on the walls of a mode room for showing maps and pictures—a and pictures which are not constantly are doing only half their work.

A demonstration desk (Fig. 1) fitted w water, and waste pipes, at least one larg board, and plenty of shelf and cupboar are obviously necessary.

Whatever be the type of the desk ado the use of the pupils, it should possess a surface of large size for drawing, and a ho surface for experiments and model-maki be quite rigid. These requirements are filled by the "mechanical drawing-desk" kind shown in Fig. 2. Each pupil re drawing-board, which may be 28 in. by 19 size being large enough to take a shee Ordnan and a at the time. desks c be fitte gas sup there s in the three sinks, wate fitted ciently allow a chester filled at

For making equippe work b required the s worksh availab also are sets of certain tools to go round t It is suggested that each pupil should m take part in making, at least one model to represent, say, either land-forms or mical movements. The best of these mo in time furnish the school with a complete tive series. The methods to be adopted discussed in a later article.

Pictorial illustration requires special p An optical lantern permanently mount available for use at any time in a few opaque blinds running in grooves and co darkening the windows when required; collection of slides, either bought, or h made in the school, will all be wanted. best, if it is possible, to make one's own bought slides are expensive; so are hir if they are to be kept for exhibition to classes; home-made ones are much chea be made from the illustrations in books an

d, most important of all, can be chosen
e work of the class and the methods of
er. Many lanterns are so made as to be
for both projection and enlarging; the
thod is especially valuable when a nega-
tained of some specially striking natural
or some phenomenon of permanent
a picture of which may be worth framing
ing on the wall. A modestly equipped
n would also serve the school Photo-
Society. It should contain a copying
for slide-making, either Barr and
or a simpler form.
eum of natural products, and of articles
esses of commerce and industry, is a
and is not expensive to fit up and supply

FIG. 2.

cimens. The form of exhibition case
is a matter of considerable importance.
or a collection of miscellaneous oddities,
form is *not* that of a glass-fronted cup-
me twelve to eighteen inches deep from
front. Vertical cases should be four or
ix inches deep, and should not be within
a half feet of the floor, or reach much
n five feet above it. There are few
eally useful in teaching geography that
find room in such cases; and it has
l suggested that any which do not fall
series arranged by the teacher, but yet
e refused without offending some well-
giver, should be relegated to a
case labelled "Recent Additions and
s."

Wall-space is wasted on museum-cases, which, besides, are rarely well lighted when hung against a wall; they are best arranged in pairs, back to back, near and at right angles to a wall with plenty of windows. A good plan is to have them standing on a case of shallow drawers, the top of which is glazed, so that the contents of the top drawer are always exhibited; the drawers are all of equal depth, so that any one can be put into the top space. Museum cases and drawers should be painted white inside, and should be dust-proof. Objects which can be arranged in short series (*e.g.*, examples of rock-denudation, cotton-spinning, or glass-making) should be grouped, each series in its own drawer, so that they can be taken out in a moment for class use.

Ordnance maps on all scales are necessary; those of the school district on the 25 in., 6in., 1 in. (coloured), 1 in. (geological), ½ in., and ¼ in. scales should be framed and exhibited permanently on the walls. Also there should be a stock of the 1 in. and 6 in. sheets showing the position of the school, for the use of the pupils in class. Editions of 200 copies and over, specially printed, are to be had at cheap rates from the Ordnance Survey Office at Southampton. One set of each of these should be folded for pocket use on class excursions.

Frames with movable backs secured by turn-buttons are useful for exhibiting pictures, of which a teacher of geography can nowadays easily make a large collection. Relief models of the British Isles, of the continents, and of at least a glacier and a volcano should be exhibited—and as many others as the authorities can be induced to provide.

For map-making, beginning with the school premises and neighbourhood, and working outwards on maps of a gradually increasing content, until some notion of astronomical measurement is obtained, sets of surveying instruments—such as land-chains, tapes, plane-tables, and sextants, and also a theodolite—are required. Many of these may be obtained in simple forms, specially made for educational purposes; but at least one accurate example of each should be available.

Meteorological instruments will, of course, be needed for the observation of the weather which goes to make up the climate. The lowest forms may well make a daily record of temperatures, and average it at the end of each month; while senior forms should keep a complete record, including the standard corrections, and work out the progress of atmospheric disturbances by combining their own observations with the daily weather reports. For this purpose they will require at least the school form of Fortin's barometer, with a set of thermometers and a rain-gauge. The chief difficulty in making such observations of real value consists in their interruption by holidays. Sometimes, however, an intelligent caretaker may be entrusted with the task of keeping up the series.

Since the mineral structure and resources of a region have so profound an effect on its geography, it will be necessary to provide for some simple work of a geological nature. A set of mineral

specimens, rock specimens, and common fossils will find its place in the museum; a set of reagents for the identification of minerals and a microscope with polariscope fittings for their determination; simple chemical apparatus for the examination of soils and natural waters, and for investigating the action of ice, rain, &c., on the land; all these are necessary if the pupils are really to observe for themselves instead of reading about the observations of others.

Wall-maps of the British Islands and their parts, the continents and the principal countries, and at least two globes, one physically coloured and one with a slate or blackboard surface, are a matter of course. There should also be a celestial globe, and some form of model for giving concrete ideas as to the effect of the earth's motions in producing day and night and the seasons.

These requirements involve considerable expenditure, but it will have to be faced if the work is to be done efficiently; and if the educators of the country are to be freed from the reproach of including in their curricula a subject which trains only the memory and inspires little but disgust in the minds of the pupils. At present a beginning only has been made; so far, the writer knows of only three geographical laboratories in this country—that at St. Dunstan's, Catford, described in the December, 1906, issue of The School World by Mr. Alford Smith; one to be opened at Leeds in September; and the one which is in process of equipment at Pontypridd County School. The last of these, which is in a temporary building, and was not specially designed for its present purpose, does not entirely fulfil the conditions laid down above, but is, it is thought, a considerable advance in the direction of providing adequate facilities for practical work.

Fig. 3.

It is a well-lighted room some twenty-one feet square, having three lofty windows in the south-eastern side and one opposite, and provides room for thirty pupils. The accompanying views will serve to give some idea of the general arrangement of the room. Fig. 1 shows the demonstration desk, the lantern on a temporary tilting-table, and behind it a reversible blackboard. One surface of this is scored with a penknife in two-inch squares, and the other provided with a sc line map of the world on Mollweide's graphic projection. These markings are visible at a short distance, and do not in the least with the ordinary use of th This view also shows the geological 1 in. the eastern half of the South Wales co two frames, three sheets being in each; to the right is the 6 in. map of the scho bourhood, eight sheets in one frame. Abo will be hung a set of Philip's Comparati maps on spring rollers.

The pupils sit or stand at mechanical d desks, of the kind shown in Fig. 2, whi the horizontal surface 30 in. above the fl have a groove to take the edge of the d board. These desks, four in number, arranged that the teacher can pass up a the room behind the chairs of two rows at a time; the chairs of half the class ar round blac lesson, are br the s front master for a lesson. tern le room two comfo once— portan siderat teache to sta hot giving less after three divisio class, all doing the same work but at times. The screen, which is of the e required by its distance from the lantern focal length of the lens, is made of whi strained on a light stretcher, made in th workshop, and provided with a dark mou way of picture-frame. When the wind darkened, although the light is not a excluded, the image on the screen stands liantly, separated by the dark frame from of the feebly illuminated room. When n the screen is slung overhead by a system and pulleys, and hangs with the white downwards, so that no dust can settle on it is lowered until its edge is about five the floor, the ends of its upper edge are ported by a triple cord suspension from so that this edge hangs immovable; the then set with its surface normal to the a projection lens, by means of a hooked st ing in a screw-eye in the wall behind.

2 are also shown part of the 1 in. map
nty of Glamorgan (ten sheets in four
relief model of the British Isles, and a
Vales. A small group of surveying
s is shown on and behind the centre
re are also shelves for exhibiting small
d "series boxes" from the museum.
m itself, which is in course of arrange-
accommodated in wall-cases in the
tside, as room could not be found for
boratory.
hows the northern corner of the room,
paratus case, the glass doors of which
, by means of false backs held by turn-
or the display of special maps and
ose shown are taken from the Harms-
s and the loose sheet edition of Philip's
ic Atlas." Another large picture-
loose back hangs on a part of the
own in the photographs. The roll on
table contains the 25 in. map of the
ood.
h-east side of the room has three high
he bottoms of which are about three and
from the floor; each window has at top
a light which opens by falling inwards;
light of the middle window has been
pletely removable, and a carefully
elf fixed outside, for sundial, gnomon,
d direction work.

'LUENCE OF INSPECTORS AND 'ECTIONS ON SECONDARY EDUCATION.

By S. Elford, M.A.
of the Coopers' Company's School, Bow, E.

ia mutantur, nos et mutamur in illis.

few years ago the headmaster of an
wed secondary school held an inde-
lent and almost autocratic position.
ed his time-table and curriculum and
his school to suit what in his opinion
needs of its particular locality, and
even without considering those needs,
own views.
gnised no authority beyond the mild
lly superficial supervision of his govern-
nd that of an external examiner, some-
by a university, but who was more
rivate individual—a country clergy-
etired schoolmaster—appointed by the
often on the suggestion of the
himself.
cess of the school depended almost
the ability, initiative, and personality
admaster. He made or marred the
Vitness the many great schools that
g up in quite small towns and villages,
of which can only be attributed to the
the headmaster, and the many almost
ools that have lately been resuscitated
w flourishing. There were giants in
—and the reverse. Now there is a general levelling up, and in some cases, I am afraid, there will be a levelling down. A school can no longer plough a "lonely furrow."

Some twelve years ago a development commenced. The start was made with the bait of grants offered by the Science and Art Department for attendances at science and art classes, to be held at fixed hours in the school, coupled with visits by inspectors; then came additional baits in the form of grants in aid towards the cost of providing schools with properly designed and equipped chemical and physical laboratories. With these grants came more frequent visits of inspectors, concerned first with science and art only, and taking no account of anything else. Later mathematics and certain other subjects were added to the list on which grants might be earned.

As endowed schools have always been poor and governors on the look-out for means of increasing incomes, headmasters were urged to get grants, and increased grants, in every possible way, and so science and art—and in particular science—were developed at the expense of other subjects. The headmaster, being in those days usually a classical or mathematical man, did not allow classics or mathematics to suffer, and the change had to be given out of English, a subject to which insufficient time was usually devoted, and which in many schools was taught perfunctorily and by a "hack" master.

It gradually began to be realised that by placing a premium on one or two subjects, others equally important would come to be comparatively neglected, and to obviate this the Board of Education, as it had now become, commenced to recognise schools as a whole, and to pay grants for general efficiency; and what were called "organised science schools" came into existence.

By degrees a reaction set in, and the protests against excessive science teaching began to make themselves felt. To meet this feeling, schools were classed as "A" or "B," according to the amount of time devoted to science; but there was still a premium set on overloading the time-table with science, and the "B" schools, where less was done, were regarded as inferior, and a lower rate of grant was paid to them; moreover, the inspectors, still being the "science and art" inspectors, devoted their chief energies to science teaching.

With the advent of Sir Robert Morant and the passing of the Education Bill of 1902 a new *régime* commenced. The old inspectors from the Science and Art Department were drafted, almost without exception, either to the technical or to the elementary side of the Board's work. The machinery for the inspection of secondary schools was entirely remodelled, and a new inspectorate established. The classification of "A" or "B" disappeared, and schools were recognised merely as secondary schools. Science has been given a much-needed rest, and geometry, modern languages, English, and the pronunciation of Latin have received attention in turn. Rules, regulations, and suggestions for the more efficient teaching of each

have been promulgated, but I do not propose here to discuss or criticise the various memoranda.

When, by the new Act, secondary education was placed under the local education authorities, pressure was brought to bear, and all except the public schools and a few of the wealthier secondary schools have been compelled, as a condition of receiving maintenance grants, to place themselves under the regulations of the Board of Education. This means that for the future the inspectors of the Board will more and more control the aims and methods of secondary education.

The average headmaster will become more and more an executive official and less and less an administrator. The inspectors form the connecting link between the Board and the schools, and it is evident that all future regulations and developments will be to a great extent based on the inspectors' reports; at present the touch of certain inspectors is to be seen clearly in the memoranda on the teaching of certain subjects that have already been issued; but of course professional opinion will and must carry weight and influence. Without discussing the merits of our present inspectors, it is incumbent on the Board of Education to appoint, as vacancies occur, only the very best men—men who must be broad-minded and, above all, experienced—not merely untried academic successes or idealists, but practical men who understand that in teaching the real and the ideal are often somewhat removed; and the Board must, above all, beware of the faddist who sets up as "the authority" on his pet subject.

A tactful and experienced inspector should be, and is, of the greatest assistance to the headmaster. He has opportunities that a man engaged in active teaching cannot have; he sees schools of all kinds in all stages of efficiency, teachers good and bad, and he can give the most valuable advice and thus prevent, what is often so fatal, work getting into a groove. It is a truism that "lookers on see most of the game," and useful reforms and improved methods are more likely to come from those who view the subject from several points of view than from those whose experience must necessarily be limited to one or two schools.

The inspector, however, should remember that when he visits a school he comes as an inspector and not as a dictator. He can be the dictator when he speaks *ex cathedra* as the Board of Education in the memoranda which he has inspired. In the school he is still inspector until his official title is changed. It is rather annoying for a headmaster to be told that "in all my (the inspector's) schools this or that subject is for the future going to be taught in this or that way." The headmaster has still, by the scheme under which his school is worked, the right to choose the text-books and methods of teaching, and to fix the school hours and frame the time-table; though, apparently, what the Board—as the Charity Commissioners—gives with one hand it —as the Board of Education secondary schools—takes away with The inspector should also rememb criticisms should be made privately an and in the hearing of the class, and first of all to the headmaster. It sho tioned, however, that in a fairly long of many inspectors, the writer has only one who was in any way wanting courtesy, and advice and suggestions offered in such a tentative way that the no loophole for taking offence.

Then as to the nature of the inspec selves, both casual and "full dress," t seems to be to confine the inspec entirely to the teacher and his meth leave the results of the teaching question. It is somewhat disconce teacher, time after time, to have an ins his class-room with the words "Plea me interrupt you," then sit down, notes, and after five minutes get up with a "Thank you; good afternoon.

The proof of the pudding is in the of teaching in the result. A really g is sometimes at a disadvantage and poor show in the presence of an insp an inferior man may create a far mor impression. Successful teaching, e boys, depends more on discipline and equation of the master than on metho our professors of "theory and pra many of our idealists, if they were to for a week with an average form of t order to test their principles for thems probably modify their views. It is nc the exponents of complicated systems tionary methods are rarely people acti in teaching in boys' schools. This, the way. It is difficult for an inspec tain the true atmosphere of a cla neither boys nor master are working normal conditions in his presence; how respect I think injustice is but rarely do always found that where there has be to criticise adversely, the inspector h the headmaster before writing his rep

In London and in some other counti education authority has also its own and as a condition of receiving grar schools have to be open also to the vi inspectors.

The two authorities, as regards ins independent and cover the same gr give grants, and so both claim the r the tune; unfortunately the tune calle always the same. What one praise may damn with faint praise. The in not recognise each other officially, apparently exchange reports. This besides being vexatious to the schoo unnecessary and is a waste of pul especially when so many schools, eve present improved conditions, are still want of funds. There are rumours i

uncil "full dress" inspections and of
ouncil memoranda on the teaching of
bjects. Let us have but one inspec-
the combined authorities if necessary,
al supervision and control.
emains to be asked whether the changes
t few years have been beneficial, and
t the present system of inspections and
is having on secondary education.
o doubt that a great impetus has been
ducation and greater efficiency is being
ll round. The position of assistant-
particular is improving, and they have,
hin sight of having, what has so long
ht, security of tenure. A school is no
isolated unit, progressing or not,
id uncared for; each forms an integral
national system. There has naturally
feeling of resentment, and headmasters,
ps have held for many years independent
ered positions, have found it irksome
o the restraints and strictures of official
s and to be put—in their opinions—in
rings. But, with a little tact and diplo-
headmaster can generally obtain his
and latterly there has been a tendency
e regulations more elastic, and to allow
e for initiative. There is, however, the
secondary education becoming stereo-
though it may seem contradictory, the
d and highly qualified the inspectors,
r is the danger of this. Permanent
aturally lean towards a bureaucratic
t; the greater the authority of the
the more reason he has for being

gulations for secondary schools which
oying to a strong man who is an able
with views of his own will prove the
f a weaker man. Many good teachers
initiative and administrative ability have
parative failures as headmasters; some
l from the want of a fixed policy, others
ack of strength to complete reforms that
commenced. In the average school,
tive ability will no longer be of such
importance. The new headmaster will
olicy and aims of the school he is to
ready settled by the local authority.
ts to be taught, the time to be devoted
nd the methods to be employed, are laid
him in definite regulations, and expert
lways at hand for his assistance. The
is, the more frequent will the visits of
or be, and the more help he will receive;
rsely, the stronger and more capable a
s himself to be, the less frequent will be
and attentions of the inspector.
s no doubt that judicious inspection is
g for both boys and masters, and when
tor makes it clear that he does not come
man—in the hope of finding some regula-
n or something to criticise adversely—
will be more welcome than otherwise;
depends on the inspector.

This article may be full of inconsistencies and seeming contradictions, but its object is to show that co-ordination is essential in a national system of education, and to ensure this co-ordination inspection is necessary. Unrestrained liberty is fatal to this, but a wisely restricted liberty will be beneficial. Times are changing, and schoolmasters must move with them.

ADDENDUM.—Since the above article was written and put into type the Regulations of the Board of Education for Secondary Schools for the ensuing year have been issued. Apart from the debatable question of universally free secondary education which is rather clearly hinted at, the new regulations mark a distinct advance. At last the Board has recognised the term as the unit, and realised that all boys do not progress at exactly the same rate or need precisely the same education. More scope for initiative is to be given, and the headmaster now will have the power to decide, or rather to suggest, the relative value of the various subjects in the curriculum. He will now have to map out a course of study and a time-table that meets the approval of his inspector, and not one to conform to inelastic and iron-bound regulations, read by the letter and not the spirit by very subordinate officials.

In these newly issued regulations the position of the inspector is emphasised, and his discretionary powers greatly increased. As forecasted above, the inspector becomes the principal factor in educational progress, and his responsibility is great.

THE TEACHING OF ENGLISH.

AN ENGLISH TEACHER'S REJOINDER.

By CHARLES J. PUGH, M.A.

Joint-Headmaster of the Little Appley Preparatory School, Ryde.

THE casual reader of educational magazines may well exclaim: "The teaching of English must be in a very parlous state!" For their columns have for long past been filled with reproaches directed against the long-suffering English teacher. The man of science complains that the students in his laboratory come to him without the ability to express the results of their researches in passable English; and recently an exponent of the "New Latin Teaching" has laid the blame upon the same patient shoulders.

It may be granted at the outset that there has in the past been considerable foundation for these reproaches. It may be granted, too, that the cavillers do not stop here, but, like honourable men, have set themselves to outline a course or syllabus in order to remedy this state of things.

But may it not as readily be granted that the ranks of the English teachers contain at least a few conscientious men? Surely the preachments of the man of science and educational reformer have not *all* been wasted? I for one would like

to attempt to show that something is being done in the matter by the English teacher beyond the patient bearing of the critic's lash.

It appears to me that there is a very evident lacuna in this English controversy. On the one hand, there is the educational expert's storm of reproach; on the other hand, the patient and willing readiness of the English teacher to accept syllabuses and new methods. May not the gap be filled by some personal experiences of what is being done, by examples of individual work, and by the outline of actual lessons given in class? We have had an immense deal of theory; it may be illuminating to see something of the practice and occasionally the finished article.

The reproach most often levelled at the English teacher—a reproach undoubtedly borne out in the past by the results of the Army examinations and the average product of the public school—is that the English boy does not succeed in expressing his ideas in intelligible, not to say forcible, appropriate, English. This, then, is the form of reproach with which I propose to deal in this paper.

It is not too trite a precept even for this twentieth century of pedagogy that you cannot make bricks without straw. The pupil cannot be expected to write "decent English" without ideas. And here at the outset we are face to face with our first practical need—Ideas.

Fortunately for the teacher, the human brain—even the brain of the average boy—is full of ideas. How to elicit them is the question. Once elicited, we may proceed to express them appropriately. Even at the risk of delaying the practical portion of my paper, I must stay a moment to lay emphasis upon three necessities in the teacher's equipment, for without them he will not succeed. First, a personal equation of high value; secondly, the ability to arouse the interest and enthusiasm of his class; thirdly, a wisdom in the choice of subjects and a knowledge of English literature, sufficient to provide him with examples of the literary expression of nearly allied thought.

Now to proceed. A brilliant day in June, a universal atmosphere of happiness, a radiant and impatiently interested class—in the case of the teacher an unexpectedly good digestion—and the day's subject is not far to seek—"The joy of life." I cannot commend the teacher who chooses such a subject on a cheerless December day, or after some social cataclysm in the miniature school world. On the day indicated above, it is *per se* appropriate.

THE JOY OF LIFE is now written boldly on the blackboard.

Every teacher knows how baldly boys present their ideas: my point is that the concomitants of this particular subject are such as to induce the presentation of a goodly number. In a quarter of an hour the board is well filled, and there is enough material to proceed to their expression.

In Henley's "Lyra Heroica" there is a most appropriate poem—the Laureate's "Is life worth *living?*" *It is most* useful for our present case. It is easily intelligible, it brims with diction, it is stirringly patriotic, and, suggests the partition of our subje treatment *by seasons*. There only quote the finished article. This is the boy of nine.

You must have good health to enjoy li just the poor who don't enjoy life. If a m of money and not good health he cannot enjo of the birds in spring that sing outside when the birds are hatching eggs and buil the tops of the trees. When you walk throu and hear the birds chirping over your he not worth living then?"

Then when summer comes the birds go c the same. When all the football's over a started, the sun comes out, the rain goes warm weather comes, you go about to wa matches—"Is life not worth living then?"

When autumn comes and the leaves ar the trees, the cold weather comes on ag your fires and run about to keep warm, a school play "Willy-wag-tail warning" t The men go and shoot birds and take t them. "Is life not worth living then?"

Then when the winter and Christmas cc and boys think of the little rhyme:

"Christmas comes but once a year,
But when it comes it brings gooc

They get, O such lovely presents! How s come down in the morning of Christ "Mother, I have not slept at all to-night so excited." "Is life not worth living the

Here I may be allowed to observe in parenthesis—that the direction of a ing is a highly potent factor in the style. I am sure, too, that as a ge literary proclivities of his home lif weightiest consideration for good o the boy's literary aspirations. Tha boys whose home surroundings are o non-intellectual turn are severely har compared with the sons of a bre breeding.

The English teacher sets himself t far as possible, such evident defects aim in view, it has been my lot to indul amount of reading aloud, both outsi the class-room. Such an exercise n incalculably useful. In the choice of is some difficulty. In the case of you is gained unless you avoid the Scylla type, and the pupil is not yet far vanced for the Charybdis of the Wa I will merely indicate here that boys fable charm in Jack London's "The Wild"; that portions of Winston "The Crossing," notably the fine d the Mississippi voyage, have afford times an admirable object-lesson in terest and style; that Erskine Childe of the Sands" has an unexpected a the young. In proof that there is gained, I append a fragment with qu flavour:

Author aetat. 12.

rrible thing is a storm! Tearing over the ıe animal that has escaped from its chains; nighty pines until their heads sway from side ng painful sighs; tearing over grassy fields; trees of their leaves which join in the wild reedom; shrieking over cities with their ›oples, over heaths, lingering here and linger- invest some ivy-mantled tower. Over the whistling and shrieking with all the sounds ith a thousand tongues it races.
liffs on to the sea, where before it it drives argers headlong on; moaning through the ips; shattering sails and spars; tossing boats side; conquering where it goes; leaving s of tumult; men clinging to spars with out- ls. Many a noble ship has seen its last.

›mmon lament is that a boy's vocabu- mall and inadequate. Of this no one scious than the boy's teacher. Much ll go far to correct this, no doubt. remarkable how much good may be non-avoidance in class-teaching of the rd," by the non-substitution of an ym. If terms such as "imperturb- bsolete," "seismographic," are the and rise unpremeditated to your lips, e them? The blackboard is there on explain them. The harvest will be many days. One chapter in my copy ıental Tommy" is well-thumbed, and are by now accustomed to the reading the average of once a term at least.

word now," Tommy cried, "it came to me t is hantle!" . . . And Mr. Ogilvy said in himself, "He *had* to think of it till he got t it. The laddie is a genius!"

ıe average boy becomes a Tommy ıis search after the right word, he is way to write English.
orm of teaching I attribute the use rds in the following excerpts, the ex- ing indicated by italics:

sparkles as if it were full of diamonds, and *ndulate* the surface. (*Author aetat.* 11.)
e notices a little stream, *meandering* through Garden of Eden, reflecting in its *limpid* ever-increasing rays of the sun. (*Author*

ant young knight, after he has been *dubbed* ıs passed the wearisome *vigil* praying beside ts forth. (*Author aetat.* 13.)
re is a great clamour as all the furred and *izens* of the forest wake up. (*Author*

ıains for me is to append instances of l blossoming of style. A exemplifies ıp of sentences or of phrases to em- meaning; B and C are illustrations and simile; D and E are examples te diction.

A.

ting in a room may look around him, and ry *ten things he sees would be an* invention for the benefit of man, which his ancestors did not possess. *The very chair he sits upon, the very windows he looks out of, the very plate he eats off, the very walls that enclose him*, are improvements for man's benefit which early generations before him had not.

Very few men who travel about and enjoy themselves think of the pains other people have taken to make the things he has to do with pleasant: *the train he goes in, the tunnel he goes through, the light that lights him,* very likely have caused the death of many people, and yet he does not think of it. (*Author aetat.* 11.)

B.

The wind blows over the cornfields, making the golden heads of corn toss from side to side, and from *afar it looks like the ripples of some great sea* with the setting sun throwing its last rays across and along them. (*Author aetat.* 12.)

C.

Like the police and detectives who hunt down the criminals of our country and bring them before the law and see that they are punished, so do the little birds and beasts. They hunt down the little mischievous insects which destroy the trees and plants; *they sentence them for their crimes.* (*Author aetat.* 12.)

D.

It is dawn. Misty shapes which resemble the ghosts of long-forgotten dawns lift from the waving trees. In the east the sky turns primrose and then red. Then bars of light shoot across the sky, and now the messengers of dawn come speeding from over the distant mountain peaks. *The golden gates open and Aurora comes forth driving her glittering chariot, with a pomp and splendour like ten thousand mirrors flashing in the sunlight.* (*Author aetat.* 13.)

E.

Nearly every day one sees the clouds, sometimes threatening, and at other times rolling by in mighty battalions, grim and grey, with ceaseless energy always advancing to some unseen goal. At other times black, motionless, and silent, sending ominous mutterings. Then this detachment of Nature's artillery, torn by flashes of light, roars with a din which makes all other sounds small in comparison to it. (*Author aetat.* 13.)

One more quotation, and I have done. It is the work of a boy of eleven, and, to my mind, embodies all the elements of his English teaching. It is lucid, imaginative, and restrained: it is full of verbal imagery, and contains just enough, and no more, of a quite poetic, sound alliteration.

In the country there are many pretty sights, but, prettiest of all, perhaps, are the silvery streams, abounding in minnows, joyfully rippling over the pebbles. It is a happy day, when the hours are idled away, and you lounge in a boat, half hidden by the reeds, while waterfowl swim about the stream, gladly enjoying this glorious day. Further down is the ford, across which cattle are driven every day. Here are some, revelling in the gladness of the bright day. The old bridge, now shaded with willows growing on the river's banks, affords a pleasant pastime for the village boys, who fish, whilst others look on drowsily at the lazy fish who lie at the bottom of the stream wondering whether it is worth the trouble to catch and eat those tempting flies. On the bank is a branch of a silver birch-tree, which extends across the

stream, on which a kingfisher is sitting, eager to catch the foolish fish, but too lazy. The only sound is the occasional chirp of a cheery bird, harmonising with the stealthy rustling of the light-coloured foliage, blown by the gentle Zephyr. Whenever he blows, all the silvery sisters sway, as though dancing, to and fro, backwards and forwards. This joy is completed with the flowers on the bank of the river. Buttercups, tinged with gorgeous gold, lilies, those flowers of purity, and daisies, their diminutive reflection, and around and beneath all, the grass; all reduplicated in the stream. The beauty of it all, coupled with the reflection of the sun, may well make anyone anxious to spend his time by the side of one such stream.

THE PROBLEM OF SUNDAY IN BOARDING SCHOOLS.

By A. G. LINNEY,
Ackworth School.

THE question as to the most profitable manner in which Sunday may be spent is one which must often cause the thoughtful schoolmaster grave anxiety. The subject presents such different aspects, each one of which must be considered, and, even when what may be called the theoretical side has been thoroughly examined, it is very probable that unavoidable local complications or special circumstances may render impossible the execution of what appears to be the most satisfactory course.

The division of time must be made with a triple object in view:

1. Adequate provision, without overdoing it, must be made for the spiritual side.

2. There must be full opportunity for a complete abandonment of the grind of class-work and lectures during Sunday.

3. The schoolboy has physical energies on seven, not six days of the week, and must have some outlet for these on Sunday as well.

To put the matter in a nutshell, Sunday becomes a problem in the right commingling of spiritual, intellectual, and physical interests. Having introduced the question thus, I now append information showing the division of time on Sunday in several boarding schools of very different types.

SUNDAY AT A CHURCH OF ENGLAND SCHOOL.

ETON COLLEGE.

8 a.m. Celebration of Holy Communion (alternate Sundays at this hour; after morning service alternate Sundays).

9 a.m. Morning prayers, followed by breakfast.

10.40 a.m. Chapel.

There is a three-quarter hour lesson in the morning also.

2 p.m. Dinner.

2.45–5 p.m. *Leisure time.*

5 p.m. Chapel, followed by tea.

In the evening there is music and singing, either in chapel or in the music school. Members of the Musical Society and others are at liberty to be present.

8.30 p.m. Supper.

SUNDAY AT A WESLEYAN SCH

THE LEYS SCHOOL, CAMBRIDGE.

8.15 a.m. Breakfast.

8.45 a.m. Prayers.

Leisure time. (Higher Form Scripture cla to 10 a.m.)

11 a.m.–12.15 p.m. Chapel.

Leisure time.

1.15 p.m. Dinner.

Leisure time. (Voluntary prayer meeting, managed by the Christian Union of the school

3–3.45 p.m. Scripture classes.

Leisure time.

4.45–5.30 p.m. "Silence in Hall."

Reading, letter-writing, &c., under supervis

5.30 p.m. Tea.

Leisure time.

6.30–7.45 p.m. Chapel.

7.45–8.45 p.m. "Silence in Hall" (as abov

8.45 p.m. Supper.

SUNDAY AT A QUAKER SCHC

ACKWORTH SCHOOL, NEAR PONTEFR

8 a.m. Breakfast.

8.30–0.30 a.m. *Leisure time.*

9.30–10.15 a.m. Scripture classes.

10.30–11.30 a.m. Meeting for worship.

11.30 a.m.–12.45 p.m. *Leisure time.*

12.45 p.m. Dinner.

1.30–2.30 p.m. *Leisure time.*

2.30 p.m. Compulsory walk, weather per forms under supervision.

4.15–4.45 p.m. Singing (in summer, bathin

4.45–5.30 p.m. Letter-writing (under super

5.40 p.m. Tea.

6–7 p.m. *Leisure time* (in summer). In w under supervision.

7 p.m. "Reading," the equivalent of Scho

8 p.m. Retire.

SUNDAY AT A ROMAN CATHOLIC

AMPLEFORTH COLLEGE, YORKS.

7.30 a.m. Early Mass; breakfast follows.

8.45–9.15 a.m. *Leisure time.*

9.15–10.45 a.m. High Mass and sermon.

11 a.m.–1 p.m. *Leisure time.*

1 p.m. Dinner.

2–4.30 p.m. *Leisure time*; public games according to season.

4.45 p.m. Tea.

5.15–6 p.m. Study; religious instruction or l writing.

6 p.m. Vespers and Benediction.

7–8.30 p.m. The school societies meet (Na Literary, Debating, &c.).

9.15 p.m. Retire.

SUNDAY IN SCHOOL STORIES.—I have it worth while to see what has be Sunday in some of the more seriou school stories. In Mr. Horace Vach "The Hill" (dealing, as most will rec Harrow School), the author speaks of afternoon walks which are such delig tunities for John [illegible] "Cae

[1] The school is a [illegible] only.

has, on the other hand, definitely said a certain set of boys, "Sunday after- a bridge fixture"—a statement which ns implies that such a custom was any- most unusual, so far as the bulk of the nt.

rrar's "Eric" shows "a Sunday after- rds the end of the summer term, and sauntering about in the green play- r lying on the banks reading and

t Sunday at Rugby was always memor- m Brown. A few lines are worth quot- was Sunday morning, and Sunday lec- not yet been established; so that nothing fast intervened between bed and eleven apel—a gap by no means easy to fill up; ough received with the correct amount ing, the first lecture instituted by the ortly afterwards was a great boon to the

ll have forgotten the description which ortly after this of Tom Brown's impres- the first sermon he heard from Dr.

PIRITUAL SIDE.—In the majority of o matter with what religious denomina- may be identified, there will probably rtions of time set aside for public wor- one of these the school will very likely a part of the congregation; that is, the l be but units among the members of n family collected for the expression of ess or adoration to the great All-Father. ting together partakes of a totally character from that of the "School or "School Reading," or whatever one ll it. From the very fact that the con- may include all ranks and ages, the ustenance provided by the preacher must ore general character and, at times, not suited to younger minds. On the other growing lad will recognise that the of the church does include young as d, and this broader view of life will be o.

onsidering this spiritual aspect, it is well er that there are strongly-marked differ- tween individual boys in regard to sm. Most schoolboys are fairly matter- nd we may take them as representing ge schoolboy mind; there will always proportion, however, with whom there er of undue introspection, or an excess al sentiment taking so strong a hold as unhealthy. Such instances, when they d most careful treatment in order that of feeling may be wisely guided into annels, neither allowing it to gain the and so cause neglect of the practical, struggle which is necessary in life, nor harshly checked. Perhaps the most se of all is that of the lad who appears without higher feelings at all; then it he schoolmaster to seek every means in his power to find some cranny in the armour-plate of callousness where the first shaft may be placed.

BOOKS AND LETTERS ON SUNDAY.—Among older pupils in the school it may be assumed that there is access to a library containing choice works of verse, biography, history, and literature. It is well to allow older boys as much freedom as possible in their range of Sunday reading, though it is certainly advisable that, in periods of time devoted to reading or letter-writing under supervision, some definite oversight should be exercised. This oversight should, so far as possible, be exercised in such a way as not to appear markedly official: suggestions as to reading supplementary courses to study in hand or advice as to choice of biography may so be given as to lead without letting the pull of the reins be felt. With middle form boys, a class library of books reserved for Sunday reading only is often valuable, but it is useless to fill the shelves with dry volumes and insulting to offer mere goody-goody stuff. English classics in the cheap, attractive dress which now clothes them, good anthologies of verse, records of missionary work by men like Paton and Hannington; in addition, a few more serious volumes of a nature likely to lead up to further inquiry later—"How we got our Bible"; several copies of "Pilgrim's Progress" and of "The Holy War"—are all suitable.

A similar special Sunday library for the youngest, with "Black Beauty," "Parables from Nature," "Carrots," the delightful stories of Horatia Ewing, and so on, may be urged.

It has always seemed to me that the writing of a letter home is a very suitable occupation for part of Sunday, and I hold that we may do well to point out to our boys that to compose as interesting a letter as they possibly can, one that breathes themselves, is, in reality, the performance of a dutiful act in a spirit consonant with the day. In fact, this letter-writing, conscientiously done, may be a deed of unselfishness.

THE PHYSICAL SIDE.—How is opportunity to be provided for the schoolboy to "let off steam" on Sunday? Very probably, many of the older pupils, fagged with the six days of study, and perhaps stiff from a football match or cross-country run on Saturday, welcome the quiet of the day. But the lad of fourten or fifteen, who has not risen to team work yet, has plenty of energy unspent on Sunday. In some schools there is an organised walk which answers the purpose in colder weather; where the school has its own swimming bath one or two bathes on hot summer Sundays are "grateful and comforting." When there has been a succession of wet days during the week, one has known the Head to allow as many as wished to change into flannels and take an hour in the gymnasium on Sunday afternoon; or in winter, under like conditions, to let such as will turn out, changed for sliding or a snowball fight. This may seem extreme to some, and I should hesitate to advocate such doings should the school be so placed that the performances of the pupils might give offence to neighbours. In any case,

perhaps, liberty to refrain should be allowed to any whose home-upbringing makes them hesitate to go with the crowd in these things.

Of late years there has been a marked stimulus given to nature-study in schools, and in most boarding schools there are more or less flourishing natural history societies. From one of the appended time-tables it will be seen that the naturalists hold their meetings on the Sunday evening. I imagine that in all schools which are so situated that it is possible for pupils to ramble in the surrounding country, there is little objection to be made to earnest naturalists pursuing—within reasonable limitation—their branches of research. Certainly one does not advocate permission for boys to go forth, as on week-days, armed with butterfly-nets or shell-scoops; as, however, the mere collector is a less popular type than formerly, this is not a great difficulty. Some authorities permit work at nature diaries and the drawing or mounting of specimens; and, surely, if the chronic loafer can be induced to work on these things, he is far more likely to keep out of mischief than if left unemployed.

Sunday Work.—In the various time-tables appended to this article, classes in Scripture or in religious instruction appear. At Eton, pupils have a three-quarter hour lesson with their tutors, as well as "Sunday questions" to prepare. In the Roman Catholic college quoted (Ampleforth), a like period is set aside either for religious instruction or for essay-writing. The same period is given at the Leys School and at Ackworth School.

From this evidence it would appear that the tendency is to avoid exacting brain-work, and to let the mind have a large measure of rest from the strain of study. Certainly, in several schools with which I am acquainted, public opinion was strong enough to suppress any attempts by over-anxious or ambitious boys to work at the week-day class-work on Sunday. More mechanical work—map-drawing, illustrations for notebooks, and so forth—was permitted. It is difficult to draw a hard and fast line as to what may be allowed on Sundays.

In conclusion, seeing that The School World comes into the hands of so many of us whose lives are led among those who will be the future citizens of our country, among those of whose souls as well as minds we have much to do with the fashioning—it is not, I deem, out of place to repeat that ours is a tremendous responsibility.

Surely there cannot be one of us who sees the scores of bright young faces ranked before us on a Sunday, but must realise this again and again. I am often reminded of the lines from "Rugby Chapel":—

We [illegible] are left
With [illegible] sombre [illegible]
Stands on the threshold, the wind
Shaking his thin white hairs—
Holds his lantern to scan
Our storm-beat figures, and asks:
Whom in our party we bring?
Whom we have left in the snow?

TEACHERS' PENSIONS.

By Fred Charles, B.A.
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II.

In almost all European countries p paid to the teachers by the State nity. In most of the German St legislation has abolished teachers' co The arguments advanced were that t officers of the State, were entitled just as much as officers in the Army that they deserve the highest consider the best of the State's agencies of c and further that, of all the Stat teachers are the most likely to sac to duty. The pensions for eleme teachers may begin generally afte service; the minimum pension varies States between 25 and 40 per cent. salary; in one State it is 60 per maximum pension is from 75 to 1 of the last salary after from years' service. Contributions are r secondary-school teachers in only Saxe-Altenburg and Saxe-Coburg-G minimum service entitling to a pe than in the case of elementary-sch being generally one year, while t pension is rather higher, from 25 to of the last salary; in one case it re cent. The maximum is the same a to 50 years' service.

In Austria the teachers do no except in some Crown lands. The from one-third to the whole of the after from 10 to 40 years' service of elementary-school teachers, and to 50 years' service in the case o school teachers.

In Denmark both elementary- an school teachers contribute nothing. from 10 to 50 per cent. of the last from 10 to 45 years' service.

Pensions are paid to both elem secondary-school teachers without [illegible] in Norway, Sweden, Switzerland and Hungary; to elem teachers in France and, subject t tion, by Belgium.

Secondary-school teachers in Ital from [illegible] three-quarters [illegible] the length of In South [illegible] receive two [illegible] 20 years' [illegible] and four-fi

ervice, but only for two years. In hey contribute 7½ per cent. of salary ve 40 per cent. of their last salary after service, and an additional fiftieth for after 20. In Portugal they contribute nt. of salary and receive a pension of after 10 years' service, increasing to e salary after 25 years' service. In he contribution is 10 per cent. and the wo-thirds after 30 years.

United States teachers are not pensioned ublic-school funds except in Maryland, d New Jersey. In some States the es have, at the request of the teachers, aws for the establishment of pension e distinctive feature of which is that no hall be obliged to contribute. Voluntual benefit associations—for temporary —exist in Baltimore, St. Louis, Cincleveland, Detroit, Chicago, Buffalo, ncisco, and St. Paul. Associations, for or retirement only, are in New York, and Baltimore; the annual dues are 1 cent. of salary up to 18 or 20 dollars. uity is from 60 per cent. of salary to rs a year. The time of service required ement is from two to five years with , or from 35 to 40 without. Associaboth temporary aid and an annuity Hamilton County, Ohio, Philadelphia, , and the District of Columbia.

State and city schemes three examples ce. The law of Maryland provides that son who has taught in the public or schools for 25 years, has reached the 60, and is, by reason of mental or disability or infirmity, unable to teach hall receive a pension from the State of ars (£40) per annum. An Act of the court of Massachusetts to create a publicachers' retirement fund in Boston pro- a permanent and a general fund. The made up of gifts and legacies and a sum by the board of trustees; the general sists of gifts and legacies not specifically the permanent fund, the interest on the nt fund, and amounts retained for the purm teachers' salaries. The sum retained dollars each alternate month. The term e is usually 30 years, 10 in the Boston The amount of annuity is determined ustees as the fund will allow. Teachers incapacitated after two years' service paid an annuity. Teachers who have ed for more than two years may, on without annuity, receive one-half of the aid by them into the fund. The trustees superintendent, six teachers, and four of the school committee.

blic-school teachers' retirement fund of consists of two funds: the permanent general. The permanent fund consists fts, legacies, &c.; (2) moneys voted or the board for this purpose; (3) tuition on-resident pupils; (4) interest on daily balances of moneys appropriated for teachers' salaries; (5) moneys which the trustees may transfer from the general fund. The general fund consists of (1) assessments on teachers' salaries up to 1,000 dollars, not less than 1 per cent. nor more than 3 per cent. per annum; (2) interest on permanent fund; (3) all moneys deducted from teachers' salaries for absence or any other cause; (4) all moneys intended for the retirement fund and not previously specified. The trustees are the president of the Board of Education, the president *pro. tem.* of that board, the chairman of the committee on teachers, the superintendent, and three teachers. Thirty years, of which 20 must be in Detroit, or 25 years in schools of Detroit, render a teacher eligible for annuity. Teachers who are incapacitated for duty, having taught 20 years (10 in Detroit), may be retired by a two-thirds vote of the trustees. Teachers who resign or are removed may apply after three months for such portion of their contributions as the trustees shall direct to be paid, not to exceed one-half of their contributions. Annuities are not to exceed 250 dollars. Current expenses are paid from the maintenance fund of the Board of Education.

At home pensions are not nearly so general. The Elementary Teachers (Superannuation) Act and the L.C.C. Pension Scheme were outlined last month. A few public bodies (for instance, the Central Welsh Board and the City of London) administer schemes which apply to teachers in their employ.

Under the scheme of the Central Welsh Board the teachers contribute from 2½ to 6 per cent. of their salaries, according to their age at the date of the first contribution, the percentage increasing as the salary increases. The contributions of the county governing bodies are on a scale 60 per cent. higher than the scale for teachers. Teachers may retire at 55 and must retire at 65; but the appointing authority may call upon a teacher who was under 40 at the date of his first contribution to retire at any time after reaching the age of 60. The pension is 50 per cent. of the average salary received during the last 5, 10, or 15 complete years of service, whichever may give the greatest result. In the case of those electing to retire earlier, the equivalent amount of the pension is calculated. The teacher's contributions are returned in full if after paying at least two years' contributions he ceases to serve in a Welsh intermediate school and is not qualified for a pension, or on his death while in the service of a Welsh intermediate school. If after contributing for 10 years a teacher is incapacitated, he receives as many sixtieths of his average salary during the previous 5, 10, or 15 years as he has served years up to 30 years. In the case of teachers at schools under the Board at the date of the commencement of the scheme, the 10 years' minimum was removed so that if a teacher were incapacitated after contributing for five years he received five-sixtieths of his average salary.

The City of London scheme provides for a contribution by the employee of 2½ per cent. of his salary, for retirement at the age of 65 on a pension of as many sixtieths of his average salary as he has served years up to 40. He must, however, have served at least 10 years. The Court of Common Council may, for the determination of the pension of an employee, add to his years of service any number up to 10 if he were over 30 years of age when appointed. In the event of a member dying while in the service of the corporation, and before he is in receipt of a pension, his contributions are returned to his representatives.

The schools which have pension schemes or retirement funds are not indicated, so far as I know, in any published list of schools. From information collected from and through personal friends, and from officials and members of the Assistant-Masters' Association, I have constructed a comparative table of the schemes in force in twenty-one secondary schools for boys, in addition to those in connection with the authorities before mentioned. Since in many cases the information was given as "private and confidential," I can give only a general summary of my comparison.

In rather more than one-half of the schools the management of the fund is handed over to one or other of the big insurance companies, many of which are now offering special terms to the members of the scholastic associations. In very few cases are the masters exempt from contributions; in a few cases house masters pay a capitation fee on the boys in their houses over a certain number; in most cases the contributions from masters are about 5 per cent. of their salaries, though in one or two schools [illegible] sufficient to provide an annuity of a stated amount, say £150. The governing bodies contribute in most cases an equal amount; there are a few whose payments are the more generous, and more whose payments are less. The retiring age [illegible] in most cases 65. Length of service varies greatly; in some cases [illegible] in others they have served 25 years, [illegible] qualify themselves for pensions with the terms of service.

[illegible] worthy [illegible] regulations [illegible] each [illegible] and [illegible] schools [illegible] average [illegible] £100 or £150 [illegible] the retiring [illegible] tions. [illegible] the governors [illegible] interest. [illegible] tions generally [illegible] When a master [illegible] the retiring age [illegible] own contributions without interest [illegible] nothing from the governors' contribu case of death the representatives genera the master's contributions, and, in very that part of the governors' contribution he would have been entitled.

Several schemes are entirely permis the governors may, in the event of a retiring, give him an allowance, but to t ance he has no claim. These schem force in the larger and richer schools; s for dealing with the smaller ones wil sidered in another article.

THE STUDY OF LANGUAG

By E. L. Milner-Barry, M.A.

THE Scotch Education Department a memorandum (Cd. 3546) on of languages to which we would attention of teachers. It deals with (i of languages in the curriculum; (ii th of modern languages; (iii the teaching languages. It may profitably be studi nection with the report recently draw joint committee of the Assistant-Master tion, the Modern Language Associatio Classical Association on the ages at guages should be begun,[1] and the an of the Board of Education for 1904–5 shall decide where doctors disagree?" committee reports in favour of Fre Latin, the English Board of Education emphatically Latin before French, wi memorandum before us the author [illegible] judgment of Sir Roger de Mauley [illegible] to be said on both sides.' [illegible] rather than of great [illegible] which may be a [illegible] and logical are laid down, [illegible] I am may happen [illegible] the [illegible] Teachers [illegible] it is assumed that [illegible] [illegible] method [illegible] pattern language [illegible] be studied in the [illegible] [illegible] [illegible]

ry value; that if colloquial facility is he teaching should be on these lines, but ne object of the teaching is to foster a literature, a different method should be But we find no suggestion made as to se conflicting interests are to be recon- the curriculum. We do not think that y of teachers at present warrants such a ation.

ome of the conclusions of the writer of orandum we are not in sympathy. We together agree that "as an examination unseen' may be defended. As an educa- strument, it is wholly vicious." Surely ous use of "unseens" in class is a direct able stimulus to the pupils, breeds alert- their powers, and can only become " in the hands of a slovenly teacher. e read that "the singing of easy songs be warmly recommended, but with the that 'singing is of course more practic- n girls than with boys.'" This seems question; we believe that in England, at the singing of *Volkslieder* as a help to language teaching was introduced in the ance into boys' schools, and that the nt has been fully justified by results.

ntally we have testimony to the value of libraries of modern language books. on this matter the writer says: "In a two the better pupils will be able and read for pleasure in their spare hours at This is no counsel of perfection. There ic schools in Scotland where boys and fourteen and fifteen have access, under ance of their teachers, to small libraries of literature suited to their years. The of the experiment has been surprising." good news, and should encourage the es of schools to be generous in expendi- money on the provision of libraries and hase of apparatus for modern language . At present we have still much to learn e experience of other countries in this

cussing the teaching of ancient languages r summarises the various reforms which ently been advocated, and comes to the n, which we believe will commend itself majority of teachers, that the "new " is not a suitable one to be applied in ty. Speaking of the efforts which have de towards reform in this direction he :

deavours cannot fail to be helpful. They will od purpose even if they do no more than add freshness to the daily round. But it would be erish the expectation that, under present con- would be possible to apply the "new method" fullness to the teaching of ancient languages. ntial to the success of that method that the ould be himself a master of the foreign tongue g instrument; and Latin, no less than literary dead beyond all hope of revival.

gree that the "new method" has exer- cised a certain amount of stimulus on classical studies by fostering a spirit of inquiry, and we believe that traces of this influence are seen in the greater attention paid to pronunciation, the simplification of the grammar, and the prominence given to *Realien*, but past experience seems to teach us the lesson that what may be called the "old method" has justified itself by its results, and we question very much whether it will ever be substantially modified save in the postponement of the study of Greek until a later period than the one when it is now commonly begun.

In conclusion we would express the hope that the memorandum before us may find its way into the hands of all teachers of language. It merits careful consideration, and cannot fail to suggest new ideas.

THE KING AND EDUCATION.

THE King laid the foundation-stone of the new buildings of the North Wales University College, Bangor, on July 9th. In reply to an address from the governing body of the college, read by the president, Lord Kenyon, the King said:

"I thank you for the loyal and dutiful address from the University College of North Wales which you have handed to me. The admirable work performed by the college in its temporary buildings has been widely recognised and was well known to me when I held the office of Chancellor of the University of Wales. I feel confident that increased efficiency will result from the facilities afforded by the commodious premises of which I have to-day laid the first stone. The competition in every branch of industry, especially in those branches which depend largely on science and art, is in these days severe, and it must be met by increased application and improved methods. The world is, I believe, better for such competition, but it behoves individual nations to use every possible effort to hold their own in the struggle. For this purpose higher education is an absolute necessity. However brilliant a man's natural talents may be, he is greatly hindered by the want of early training, and as a rule only those who have enjoyed a good education are capable of acquiring such proficiency in any branch of study as will enable them to succeed. The University College of North Wales will offer to its students exceptional opportunities of instruction. Time and money, energy and perseverance, will, I am sure, not be spared in the endeavour to afford every facility to the acquirement of knowledge, and I have had sufficient opportunities of judging the intelligence of the Welsh people and their eagerness in the pursuit of knowledge to know that your young men and women will take every advantage of the instruction which is offered them. Our thanks are due to the late Dr. Evan Thomas, of Manchester, to the citizens of Bangor, and other generous benefactors who have assisted in the great work. It is a gratifying feature of English

life to find rich men so ready to contribute to institutions where the young obtain advantages of study which might otherwise be beyond their reach. The president and the governing bodies will, I am sure, as expert trainers of youth, fail not in inculcating the moral qualities which build up such characters as are the part of a wise education. It is the character of the natives of Great Britain which, equally with their energy and enterprise, has given them the proud position which they hold in all countries in the world. The feelings of self-respect and self-sacrifice which are instilled in their minds from earliest youth, and are cultivated in institutions such as these, remain with them always, and are the means of making the people of this country respected and honoured wherever they go. I pray that by the blessing of God the good work of this institution may be long continued."

THE NEW REGULATIONS FOR THE TRAINING OF TEACHERS.

THERE are three sides to the Regulations for the Training of Teachers which have just been issued (Cd. 3597, price 6*d*., July, 1907) by the Board of Education. The first, the removal of denominational restrictions after 1908, received the attention of the House of Commons on Thursday, July 11th, in a debate reported in seven columns in the *Times* of Friday, July 12th, when Mr. Redmond contemptuously referred to the Regulations for Secondary Schools and Training Colleges as a couple of pamphlets issued without any notice. The second side is the very considerable revision of the undertaking to be required from students entering training colleges, and the third is the development of the courses of study prescribed for students.

The present declaration holds somewhat loosely, and after a student has obtained his parchment certificate by serving nearly two years in an elementary school, he considers himself fairly free to offer his services to other than the elementary branches. The problem of requiring a reasonable amount of service in public schools has received the attention of the consultative committee, and it generally recommends that all students in future are to enter upon a legally enforceable undertaking which provides for seven years' service in the case of a man, and five years' in the case of a woman, to be completed within ten years and seven years respectively after leaving the training college. Mr. Rankine, H.M. inspector, once reported on the sad havoc matrimony made in the ranks of the women teachers, and now our Jacob must wait five years for his Rachel, or pay an indemnity which is roughly computed at £15 a year for each year she falls short of her five years' probation. The expression "legally enforceable" is interesting. Can a minor enter into an agreement of this nature? One thing is certain: that *unless a student does* sign it, he will not be admitted to a training college. We n add that the expression "approved sc which the student is to follow his profes now be any secondary school in respect grants are paid by the Board.

The courses of study have also rec anxious consideration of the Board, whi that it is greatly concerned by the i difficulty of securing for students who versity courses adequate instruction and for the main business of their professi pressure of their academic work is that such students are at present ofter from courses in physical exercises and i training, and their training in the art of itself and other professional subjects lamentably inadequate. These omiss indefensible, and the conflict between pr and academic work seems to the Boar for more serious attention than it has received, and so it may become nec require that teachers who have enjoyed lege of university courses shall produce that the deficiencies, if there are any, in fessional equipment, have been properly before they are definitely recognised as c teachers.

A very valuable contribution to the n instruction is to be found in the prefato andum to the regulations, and a rea gratitude is owing to Sir Robert Mor He suggests that every education whic to be called complete must include som of the student in those systematic m inquiry which are necessary for an advance in knowledge, and are the n educative of all mental processes. scientific spirit is to find its right exp the teaching given in elementary schoo be made to affect the whole study of the teacher during his course in the trainin It must not be confined to any one bra curriculum. It is true that, partly as of tradition and partly from other rea term "scientific method" has come to ciated more particularly with the study phenomena. But as a matter of fact, method is of equal importance, and is, matter of ancient application in the field literature, language and philosophy; and knowledge of these has made advance, discerned that the essential processes of inquiry have been employed. When Arnold declared in 1868 that the want o of science, of systematic knowledge, capital want of English education and c life, he was thinking of science as a m not as a prescribed portion or subject of lum. It cannot be doubted that this been seriously prevalent in a large porti education and training hitherto pro elementary-school teachers. Every tra lege therefore should attempt, even if in a limited degree, to conduct its instr as many branches of the curriculum as

a way that there shall be in the case of dent some range of knowledge within here is no fact and no inference from ch has not been subjected to the severest is command.

minor changes are also made in these ulations. The third class of the King's hip is abolished, so now all who pass the ion are qualified to enter a college. ion of students for matriculation exami- are required to cease because the work d in the course, together with the more e professional studies, is sufficient to n average student during the two years riod of training. Thanks to the influences ongresses of school hygiene, the Board ided for the more adequate treatment of ect by recommending that in the drawing chemes of work careful consideration e given to the paramount claims of this It announces that further steps will with the view of securing for hygiene its lace in the education and training of all intending to become teachers in public ry schools. Further efforts are also to in the direction of nature-study, in the making the scholars interested in the birds, and other natural objects which them, and also with the desire of ng an independent habit of thought and shing a well-defined field of knowledge rom the scholar's immediate observation. xcellent, and, indeed, looked at from the rofessional point of view, the adjustments ear's regulations are a most satisfactory advance. All the syllabuses breathe the irit of self-development, and the general ay feel confident that the training of the of the future will be at least on intelligent, and thoughtful lines.

CEL OF NEW READING BOOKS.

ERY large assortment of books await ecognition. *Juniores priores*—the little nes' books first. Mrs. P. A. Barnett has selected in "Song and Story" arts, 6*d*. each, and 100 pages each) deal that is not hackneyed, and a good t will be absolutely new to teachers. evidently a desire to get back to moral and the delightful verses will perhaps be the young as they are certainly enter- to the old.

> Endure your mother's timely stare,
> Your father's righteous ire,
> And do not wriggle in your chair
> Like flannel in the fire.

re is only a section of "Shock-headed character; many dainty ditties are pub- permission. The names of Boker, De , Thornbury, Rankine, O'Keefe, Hine, usually found in anthologies; and all is r the editor knows what is good. There is plenty in these little books for a term's work in any class.

Messrs. Pitman send "Stories for Little Readers," by Alice Gibbons (four parts, 3*d*. each), well printed and brightly illustrated. The same publishers send their second primer (sound, symbol, and idea correlated), price 4*d*., an extremely interesting experiment which would bear enlargement; each reading illustrates and is illustrated by its picture. From Messrs. Bell we have the "York Poetry Books" (6*d*. and 8*d*. each) in three parts (about 100 pp. each). The verse is varied and well chosen. Messrs. Oliver and Boyd produce a series, "The Excelsior Reader and Poetry Books," to which the Reader (in three parts) is introductory (8*d*., 108 pp., and brightly coloured). The poetry books are arranged according to subject: Love of Nature, Flowers, Home Life, Courage, Fairyland, Noble Deeds, Great Thoughts, all have their sections. They are sold at 2*d*. and 3*d*., and again we notice, as in the "York Readers" and in Mrs. Barnett's books, how far afield the editors have gone. A new spirit seems to be coming over our book-makers, born of the uneasy question "Do we understand the child?" Messrs. Nelson go further still in issuing (2*d*. each) twenty-four books of song: Songs of the Nursery, of Childhood, of England, of the Empire, of Dreamland, of the Streams, of Maidenhood, of Quiet, of Endeavour, "miscellaneous collections loosely connected by the central thought." Black's "Picture Lessons in English" (6*d*.) and "Literary Readers" (1*s*.), with illustrations such as children love and can talk about, have been before noticed and praised in these pages. Messrs. Longmans send "Old-fashioned Rhymes and Poems" (1*s*. 6*d*., pp. 1–90), selected by Mrs. Broadknight—the title indicates the contents; and from Messrs. Methuen comes an easy "Poetry Book," arranged by W. Williamson (1*s*., pp. 1–116). Indeed, there is plenty of choice for the modern school.

Twelve plays of Shakespeare (the "Plain Text Shakespeare" they are called) come from Messrs. Blackie (4*d*. each). We have tested one or two and find they can be read with any class. This proves they must have been edited by someone who knows his work. They are admirable editions to get a great deal of work done with. "The Merchant of Venice" and "Julius Caesar" have also been published by Messrs. Chambers (4*d*. each) with introductions. This edition may be read in class too.

To their already long list of classics Messrs. Blackie add "Montezuma," the "Capture of Mexico," Philemon Holland's translation of Ammianus Marcellinus' "Julian," two of Macaulay's Essays, and two long extracts from Carlyle. The series has been welcomed by us again and again, and we hope it will continue and succeed. Especially good it is to get Philemon Holland's English into the schools. The books are edited by Dr. Rouse, and are priced at 6*d*. each. Fifty have been issued.

Messrs. Nelson, "to meet the demand for

literary reading matter of a high-class character," issue twelve little volumes (6*d.* each, 100 pages, in cloth boards). They are carefully edited, and, where necessary, simplified. Along with better-known books, such as Lamb's "Tales" (a very hardy volume) we find Hawthorne's "Great Stone Face" and Irving's "Sleepy Hollow." It is most encouraging to find publishers following the advice so often given in these pages, but we hope that the schools will back the publishers up. Can we not, too, have any further issues of "Westward Ho!" "Quentin Durward," Tennyson's shorter poems, and Lamb's "Tales" forbidden? There are many books (*e.g.*, North's Plutarch, in the old spelling, part of a chronicle or two in the old spelling, first-class translations, well-written biographies, geographies of all kinds, so long as they are not like most of the present ones) crying for publication.

The A 1 "Bright Story Readers," so easy to handle (Messrs. E. J. Arnold, 4*d.* each) continue to come from the press. We have before us the "Seven Champions of Christendom," "Gulliver's Travels," and Lamb's "Tales from Shakespeare." With one exception, to be noted later, we do not know of books so excellent in form. Messrs. Bell send a clearly printed, well-edited copy of Kingsley's "Heroes," and an admirable "Stories of King Arthur" from Malory and Tennyson, by R. S. Bate (1*s.*). Prof. A. J. Church has written for Messrs. Cassell a really original "Stories from Ancient Greece" (6*d.*), illustrated. "Days before History," with a preface by Prof. Findlay, is written by H. R. Hall, and is an interesting introduction to archæology. If the book means to help the children to "do" more and study less, it ought to be very welcome. But we do not want children (or women) in the factories if we can help it. The book costs 1*s.* 6*d.*, is well illustrated, and will attract attention; but *we need more "doing" in the schools, not more reading about doing.*

Mr. J. M. Dent sends (in dainty form as usual) "Stories from Carlyle," "Voyages of Famous British Seamen," and "Tales from Browning" (1*s.* each). The last-named is really not for schools, but for young students of Browning. Where, except in the sixth form of girls' schools, are they? Wherever they are, the book will help them. Messrs. Macmillan have reprinted their wonderful sixpenny edition of the "Water Babies," "Alice Through the Looking-Glass," and, best of all, "Old Christmas." Everyone knows the illustrations of Walter Crane, Linley Sambourne, John Tenniel, and Randolph Caldecott. These books seem to us to touch the high-water mark of cheap, good, well-shaped and admirably illustrated literature.

Several larger and more ambitious volumes have yet to be noticed. Messrs. W. B. Clive send an "Anthology of English Verse" (pp. 1–262, 2*s.*), by Messrs. Wyatt and Goggin. The book contains introduction and glossary. Most of the extracts are familiar and well chosen. Mr. E. *Arnold continues the* "Epochs of English Literature" (the Johnson Epoch and the Pope by Mr. Stobart (1*s.* 6*d.* each). Foregoing have been noticed by us. These bo contain introductions and necessary not Clarendon Press does admirable service Hadow's "Growth of the Drama" Treasury of English Literature, vol. 2), which in 416 pages supplies all the i information and a wealth of illustration miracle plays, the moralities, and t tragedies. The price is 3*s.* 6*d.*, and the volume supplies a real want. It i there are no pictures.

Of other big and handsomely got-up must single out Messrs. Harrap's "Sto Dickens," by W. McSpadden; the "Sto the Aeneid," by H. L. Favell; the "Sto the Earthly Paradise," by M. Edgar; "Book of Rustem," by E. M. Wilmo The books are large, well printed, full illustrations, and the price (1*s.* 6*d.* each) lously low. It was a fine thought to from Firdausi the story which Matthe made so familiar; but, indeed, any o books might be a gift book, so attract presented. They make one eager to sta a class of boys or girls of twelve or thirt of age.

This long list is now finished. remarks on the books do not in any justice to the new care and energy w lishers are showing. Is it too much forward to a time when the choice of t books in schools shall not be left to the and hurried glance of those who do know what is on the market, and sh governed by the unwise parsimony of which demand expensive scientific appa leave literary apparatus uncared for a chased? Why are so many schools demned to use publishers' rubbis publishers' jewels may be obtained f extra cost?

GREECE IN THE MIDDLE A

SIR RENNELL RODD has not for sojourn in Greece, or those studies the first fruit was his charming l on the customs and lore of moder Who, indeed, that has once fallen under can forget Greece? Here we meet our a new field, and one which promises mu explorer. It is only recently that sch seen the importance of the history between the time when it became a R vince and the fall of Constantinople. country, indeed, Byzantine history is lected, although both Germany and R support an elaborate quarterly dealing that subject. We welcome, therefore, a awakening interest here, and this substa

[1] "The Princes of Achaia, and the Chronicles of Morea. Greece in the Middle Ages. By Sir Rennell Rodd. With a xvi+302, iv+334 pp. (Arnold.) 25s. net.

at interest is awakening. Sir Rennell
s not attempt a general history of Greek
has provided only a local study, confined
ankish princes of the Morea and certain
natters. Many such studies must pre-
larger undertaking which we hope for
.
thor acknowledges in full his debt to his
ors, particularly the great pioneer Hopf,
hom it is clear that this book would not
written. Hopf's collections have been
ible, and Hopf "an almost infallible
but Sir Rennell Rodd has had collations
s made in cases of doubt or apparent
nd has consulted documents which Hopf
ublished in full; he has also made a
ical study of the Greek Chronicle of
hich has lately been published in scholarly
Ir. John Schmitt (Methuen). Sir Rennell
dgment is sound, and he is a careful in-
; the reader may rely on his story as
and if there be doubt in it, he will find
tated for his caution.
rk begins with the story of the Fourth
and the sack of Constantinople by the
in 1204. It is true Gibbon has dealt
episode; perhaps the account might have
tened for that reason, but it was right
mething, because this forms the con-
link between France and mediæval
nd also because it is not generally under-
t the Crusaders did more mischief than
did in 1453. When the rule of Byzan-
thus weakened, the empire began to
; and certain Frankish knights got a
the Peloponnese which they proceeded to
The story of the conquest resembles in
and success the capture of Mexico; but
blished, the Franks did not oppress their
and all might have been well but for
e quarrels amongst themselves. The
ne of the early period is Villehardouin,
his paramount position by a fraud, by
ousted his liege lord Champlitte. The
s of the persons of the ensuing drama
quite clearly as on the stage: the Ville-
, Guy de la Roche, Michael Palaeologus,
rest. There are also the elements of
ὕβρις, νέμεσις, περιπέτεια. The next gene-
ith Florence of Hainault, Philip of
, and Isabella Villehardouin, is more
ed, and shows less individuality in the
ntil the death-blow is struck at the
dominion in the Morea by the Catalan
, founded by that astonishing adventurer,
Flor. New families come on the scene:
d names reappear; but the story now
ess easy to follow, and we must leave it.
are several descriptions of the castles
these mediæval Franks, most of which
some form to this day; and one or two
ans are given. We should have been
for more of this. We hope that the
chool at Athens, which is turning its
in this direction, will give an exhaustive
account of these fine fortifications. An appendix
contains longer notes and a few documents.

The book is agreeably written, except for one
or two tricks of style (*e.g.*, putting a descriptive
phrase in the text, and a proper name in a note,
without reference, i. pp. 145, 146). Is "image"
the right word, by the way, on p. 52, for an
εἰκών (picture) of the Madonna? That should
have been shocking to the Greek Church.

THE TEACHING OF ENGLISH IN PRIMARY SCHOOLS.[1]

THE memorandum on the teaching of English which has been issued by the Scotch Education Department is the first of a series intended to embrace all the main subjects of the school curriculum. Like the "Suggestions" of the Board of Education, these memoranda do not try to prescribe the courses of instruction in the various school subjects. They aim at presenting as clearly and succinctly as possible the end and aim of instruction in each separate branch, and indicating the leading principles that should be kept in view in the preparation of detailed syllabuses. Further, the memoranda are not put forward as final or authoritative documents. "Criticisms and suggestions will be welcomed, and will be carefully weighed with a view to issuing revised editions from time to time as experience may prompt." These words mark a new spirit in educational administration, and are the death-knell of the doctrine of departmental infallibility which has done so much to sterilise and stereotype school methods.

Coming to the subject-matter of the English memorandum, it may be said at once that it does not require the official imprimatur of the Department to command the attention of teachers. It is itself an educational document of first importance. Within brief scope it embraces the best that has been said and written on the teaching of English. But the memorandum is essentially an original contribution, original not so much in its firm grasp of educational principles as in its appreciation of the conditions under which these principles are to be put into practical application. From first to last the mental progress of the child during its school life and its mental attitude at different stages are kept steadily in view, and the matter and method of instruction are carefully arranged in accordance therewith. For the first time in an official document there is recognition of the fact that the circumstance and opportunities of schools and of pupils vary, and that what may fairly be demanded of one cannot and should not be demanded of another.

The sections dealing with poetry and school literature are exceptionally fresh and stimulating. The list of poems suggested as suitable for use in schools at different stages has the merit of containing all the old favourites. The framer of the memorandum has resisted the temptation to include novelties which masquerade as poetry in many of the latest school readers. It is impossible to do justice to the memorandum by means of extract, as it is woven of texture all compact, but the following selections may help to send readers to the fountain-head.

AIM.

The teaching of English in the primary school aims simply at enabling the pupils to understand, enjoy, and

[1] "Memorandum on the Teaching of English in Scottish Primary Schools." (Cd. 3410.) (Wyman's.) 2d.

use good English of moderate difficulty, whether spoken or written. Spelling, grammar, etymology, &c., are to be regarded solely as means to this end, and pursued only so far as they conduce to it. Its attainment involves the systematic cultivation of thought and feeling as expressed in language. Hence the paramount importance of English in the elementary curriculum.

To English thus defined all other subjects lend their aid, in so far as they employ language as a medium of communication. All subjects, therefore, and all the ordinary routine of school life, give opportunities for incidental practice in English, which the teacher should use by making, and by insisting that the pupils make, all oral communications in good English, well pronounced, and thrown (if need be) into complete grammatical form. But such practice is incidental only. Correction of errors, or insistence on grammatical completeness, should not be pushed so far as to impede fluency or to distract attention from the matter in hand. The teaching of correct forms of speech belongs, in fact, to the systematic exercises about to be described; but, as correct forms are learned, they should be practised on all occasions, else the benefit of the systematic instruction will be lost.

Systematic instruction in English should begin with speech. Command of spoken English is not only of obvious practical value, and a thing to be acquired for its own sake, but supplies the best foundation for the study of the written language. It follows that, where the children's command of English on entering school is small, the introduction of reading should (if the age of the children permit it) be postponed until a certain degree of oral proficiency has been attained. Otherwise English names and sounds come to be associated primarily with symbols, not with things, whatever be the system adopted for the teaching of reading.

These principles plainly apply in full force to the case of Gaelic-speaking children. But even Lowland children vary greatly in their initial attainments in English, and the teacher's first business is to ascertain approximately what each child's attainments are, and to classify for English accordingly. This will, in the first place, suggest how long reading should be deferred. The application to composition is still more important, and will be discussed hereafter; and, in general, it is evident that, with such diversities of initial attainment, as between school and school, the same discipline cannot be applied at the outset to all schools alike, nor the same results expected from all at the end of the course.

The Understanding of English.

In the field available for the training of intelligence, English is not sharply delimited from other class subjects. But one part of that field may fairly be regarded as its peculiar property. It is the special province of literature to deal with human motive, character, and action. The main aim of the literature lesson, therefore, on this side, is to increase the child's knowledge of human nature, and, in so doing, to add to his stock of ideas about life, to give them precision, and to bring them into new relations. The mental processes involved, being in no sense peculiar to English, need not be discussed here. It will be enough to indicate the forms of literature appropriate to the primary school, and to outline a method by which they may be taught.

School literature should deal chiefly with human action, and should therefore be principally narrative (or dramatic) *in form, proceeding* from folk tales and songs to fables *and parables, myths and legends* (whether in prose or in verse), romance and adventure, history and bi should also include sketches of travel and dis descriptions of unfamiliar phenomena or proces excite curiosity and imagination. Familiar nature, on the other hand, are best studied dir lyrics are always suitable; and some elegiac p obvious kind, even some very easy specimens and argument, may be attempted with the hi but there is little room for reflective, and non subjective literature. Stories of child-life a suitable for children, provided they be not too t simple conditions of primitive life are also ea by children; but many aspects of modern life n at least as interesting. For Scottish childr turesque story of their own land is peculiarly and so are some Scottish songs, poems, and b should tales and poems of merely local rep dained in their native localities, for they lie of popular literature.

Whether reading be begun at once or not, of literature should at first be entirely oral continue to be largely oral until the mechanic of reading have been mastered; and to the elementary course the reading of good literatu the teacher should form a regular exercise. purpose of the lesson should be kept steadily not subordinated to, or needlessly complicate mechanical art of word-naming, or the accom elocution.

The Appreciation of English: Poet

But if the understanding of literature involv processes which are not also involved in the u of history, and even of science, its emotional s it off very clearly from such subjects, and al with music and drawing. This appeal is ma measure, by all literature, but most charact poetry. To poetry, then, this part of the di conveniently be confined.

Repetition of poetry will be mentioned her expression exercises, and again among voi But these are merely incidental uses, for which form recommends it. Its peculiar funct elementary curriculum is the cultivation of t What emotions can it cultivate, and how? Th these questions determines the choice of poetry and the mode of teaching it.

Poetry selected for children must arouse n emotion; nor such potent emotions as terror, to an overwhelming degree; nor can it proper instincts which have not yet arisen. But if a sure to arise and to need regulation, poetry c measure, prepare for its advent by presenting first in a pure and ideal form.

There remains a group of pleasurable c emotions proper to childhood, and ranging fro and frolic and mere delight in pretty thin sympathy, love, and admiration on the one through joy in natural beauty and wonder on such deep sentiments as reverence and awe.

Viewed in this light, poetry in schools ma powerful ally to morals by broadening and d emotional nature, and so enriching the soil of But its effect on conduct and character is i cannot replace moral instruction, much less of the will in habits of well-doing. Nor co moral precepts poetry, though couched in verse

Poetry, then, cultivates the emotions by pre objects in pure and ideal forms. Poetic ide

r no one is moved by abstractions; and (beyond f babyhood) their connection must be intelligible. h the children must be able to picture the rly enough to feel their force, poetic images ave the definite precision that science demands. ions, and those the deepest, depend on vague , which can be felt indeed, but not digested into , too, though the whole poem must have a r the children, it is by no means necessary that comprehend its full meaning as a grown person rrative, as has already been shown, is the form ion which children can best understand and ections for schools should therefore consist narrative poems and ballads, or of poems which least a thread of narrative.

Oral Composition.

ses the first exercises in expression should aim fluency, and should consist of singing games, mes, rhymes and familiar talks, all in the form d designed simply to encourage the children to y, whether in English, in Scots, or in Gaelic. ome English is fairly good and abundant, these lks may soon be directed to the acquisition of n idiom and precision in vocabulary by correc- rs as they arise.

more scanty and debased the home English is, necessary it is to postpone this attempt[1] and to undations of English speech by purely imitative

actual repetition of folk-songs and rhymes, pre- prose as more easily remembered, and chosen for those qualities of simple vocabulary and h they share with familiar speech.

, by reproduction of narrative or dramatic prose. ercise begins with folk- and fairy-tales of the current type, it will be at first a form of prose the reiterations which mark all genuine folk- ng the memory in the same way as the metrical of verse. The easiest stories are those in episodes are shortest and fullest of reiterations. is secured by lengthening and varying the until the story approaches the ordinary type of narrative and the reproduction correspondingly haracter of mere repetition; and the children ately try to invent episodes or stories, modelled those which they have learned. The material red may be worked up by question and answer, tion and by dramatisation. But, beyond any s (by word, picture, or gesture) that may be the comprehension of the story, such develop- better not be attempted until the story itself amiliar. To this end it should be told again , always in the same words. Fortunately, ke an old story at least as well as a new one, eat sticklers for verbal consistency.

Written Composition.

composition in the proper sense should not l the children have attained considerable pro- oral composition and in the mechanics of

ct of its medium, written composition is the in a series which begins with printing and to copy-writing, transcription, dictation, and writing from memory. This mechanical aspect will be treated separately here, and should, as far as possible, be treated separately in actual practice.

In respect of the mental processes involved, written composition is essentially an extension of oral composition. But a speaker can make his meaning clear by the use of reiteration, inflection, and gesture. In written composition these aids to clearness are withdrawn. Their absence obliges us to bestow more care on the arrangement of matter, on the structure of sentences, and on the choice and order of words; and the comparative slowness of the medium allows this to be done.

The reproduction of a short narrative at something like its original length makes little demand on the intelligence, except to grasp the general drift of the story. But it reveals the most obvious peculiarity of written composition, viz., the conventions of the written sentence, and so affords an excellent exercise for beginners in breaking up a given whole into sentences. The transition from oral to written narrative may be made by writing on the blackboard to the children's dictation, but without punctuation, a story which they have learned, and then, by comparison with the original, breaking it up into sentences before their eyes. At this point grammatical analysis begins. The stories reproduced should be worth reproducing.

In descriptive writing, on the other hand, the matter (if previously discussed) may be said to be given in the form of sentences, and the problem is to connect these sentences properly. In describing a view or the like, it may be enough to follow the order in which things meet the eye. But in higher forms of description some sort of organic or causal arrangement is sought, proceeding from cause to effect or from effect to cause, from whole to parts or from parts to whole, whichever may be the more familiar. Even in its simplest form this is an exercise of great value and difficulty, and needs much help at first. It may begin with the attempt to reproduce a model description, the children's efforts being compared with the model and its superiority explained. (The teacher can build up the model on the back of the blackboard during the oral lesson.) Then the arrangement may be suggested by questions or heads of paragraphs, and the children may ultimately be left to supply both form and matter, and to describe their own observations in their own way. But some help will generally be needed. Again, it is of the first importance that the subjects chosen should be such as are worth describing.

From a very early stage, however, the children should be taught the common conventions of letter-writing, and be allowed to write letters freely. The main object of this exercise at first is to keep before the children the true purpose of written communication in the only form which most of them can comprehend. Their letters should therefore be real letters, giving the news, and should at first be very leniently criticised, if, indeed, their earliest efforts should be returned at all. Gradually, no doubt, a higher degree of correctness will be exacted, and formal exercises may be devised on the lines already indicated; *e.g.*, the answering of invitations, writing of imaginary letters in given circumstances, &c.

[1] this point scientific procedure would require the formulation of t of ideas and relations, which children ought to master before so formal instruction. *But this has not yet been done for*

Studies in Plant Life. By J. Adams. viii+179 pp. (Dublin: Fallon and Co.)—This is a very serviceable little book for beginners. The account of the structure and functions of plant organs is concise and not over-burdened with technical terms. The book also contains short chapters on habitat, as well as descriptions of the commoner poisonous plants. It is well illustrated.

HISTORY AND CURRENT EVENTS.

THERE is being held in Bruges an "Exhibition of the Golden Fleece" which illustrates, *inter alia*, the history of that famous order. It was founded in 1429 by Philip "the Good," Duke and Count of Burgundy, &c., &c. The present sovereigns of the two branches of the order are the Emperor of Austria and the King of Spain. How is this? Why are there two branches? Were these branches ever rivals? Are they so now? The answer to these questions is to be found in the history of the heirs of Philip the Good. Who was his granddaughter? Whom did she marry? Who was her eldest grandson? Who was his brother? What was their family name? and how is it that the present King of Spain is not of that family and yet is a sovereign of the order?

ANOTHER Russian *Duma* has been dissolved. But the Czar agrees with Sir Henry Campbell-Bannerman, and cries: The Duma is dead, long live the Duma! For another assembly is to meet in the autumn. We can get so little trustworthy news from Russia that it is all but impossible to understand the real history of the revolution that is progressing in that country. But in a declaration of last June the Czar says: "The Duma, summoned to strengthen the Russian State, ought to be Russian in spirit. The other nations forming part of our Empire ought to have representatives of their needs in the Duma, but they ought not to appear, and shall not appear, in numbers which make it possible for them to be the arbiters on questions which are purely Russian." In other words, Russia is too big for a parliament containing representatives of all its inhabitants. There are too many conflicting interests, and the only possibility of representing these would be by means of a federation like Austria-Hungary or the United States of America. But Russia is like the British Empire: it is not homogeneous enough for federation by way of assemblies. It must be federative only by bureaucracy, and while Greater Britain has "colonial conferences" from which India is excluded, Greater Russia has an official class which watches over non-Russian subjects.

SUGAR is a sweet thing, but its manufacture and uses may lead to much bitterness. The sugar-cane planters of Jamaica want an abolition of all bounties on beetroot cultivation, in order that it may be profitable for them to grow the cane. But bounties on beet sugar help to cheapen sugar for everyone else. There is accordingly a direct conflict of interests between Jamaica folk and the consumers of Great Britain. Cheap sugar also helps to ruin France to put on the market wines which compete only too successfully with the natural juice of the grape. Switzerland, Germany, France and the Netherlands have governments professedly devoted to taxes on sugar to save their [illegible] from extinction. Other folk are to buy sugar in order that it may be. The Jamaica planters [illegible] French growers have [illegible] which will be the end of [illegible] How will [illegible] protection [illegible] Will [illegible] party.

[illegible] Russian's [illegible] Oxford [illegible] Austrian [illegible] Magyar [illegible] but were satisfied to believe that they were "[illegible] Hungary. "Liberty" is a glorious word, a multitude of sins. What use are the Magy now of the liberty which they failed to get i which they attained in 1867 and have had They have passed a law this last June by relations between landowners and their em made mediæval. Serfdom is practically resto the old "droits du seigneur" that we thought of the past. So far, for internal matters. matters, they hate the Croats, whose Ban, Jel to conquer them in 1848–9, and a new Ban of been lately appointed who believes in gov country in Magyar interests. Trouble is expec

ITEMS OF INTEREST.

GENERAL.

THE conditions of tenure of assistant secondary schools have just been brought before the public by the case of Wright v. t of Zetland and others. This case was heard i Bench on July 17th and 18th before Mr. Just and a special jury. A new headmaster, M was appointed to Richmond Grammar Sc summer of 1906, to enter upon his duties on Se On September 10th the four assistant-masters received an intimation from Mr. Prestwich tended to begin work on the 21st with an staff. No cause was assigned for this summa The four assistant-masters consulted the Assis Association, who obtained the opinion of couns mined to support Mr. Wright, who was chosen the four masters concerned, in bringing an a the governors of the school for wrongful dis evidence of Mr. Wright, Dr. Gow, Dr. Fry, M and others amply satisfied the jury that the c profession was a full term's notice, and they Mr. Wright the full amount claimed. But Lawrance then decided that, under the Richm which is similar to the schemes of 90 schools there was no contract between the govern assistant-masters, and he entered judgme defendants.

[illegible] as it has gone, makes [illegible] security of the position of assistant-teachers schools. The governors disclaimed all respons duty to the assistant-masters, and the judge opinion on the point of law. Equity, as re the case, is not that the dismissal was wron [illegible] by the Court of Appe [illegible] taken, assistant-mast [illegible] the personal servants [illegible] made clear by the judge's [illegible] counsel, that the sc [illegible] governors, and that the assi [illegible] the school so represented [illegible] they are liable for [illegible] It is not [illegible] this position, a [illegible] that they should. [illegible] for headmaster [illegible] financial and other [illegible] them. If [illegible] be upheld by t [illegible] part of head- a [illegible] would seem n

d of Education has addressed a letter to the cal education authority on the subject of the abilities under the Workmen's Compensation f local education authorities and the managers ded schools to the teachers employed in provided vided elementary schools within the area of the The question of whether a teacher in an school is or is not a workman within the the Act is one ultimately for the decision of aw, and the Board of Education has no power t to give a binding decision on the subject. In owever, of the employers of a teacher in an school being held to be liable to compensate under the Act, in respect of personal injuries arising in the course of that teacher's employ- ay be that questions may arise between the thority and the managers of a non-provided hich the teacher is employed as to whether y rests upon the authority or upon the The Board of Education is advised that in such s it would be the Board's duty, upon the ng referred to it, to decide the question as authority and the managers. The Board has advice with a view to guidance in the event estion being referred to it.

d is advised that teachers whose salaries do £250 per annum are within the provisions of n's Compensation Act, 1906, and are entitled tion as that Act provides, if injured by accident of and in the course of their employment. primarily liable to pay compensation to a njured are the employers of the teacher, and advised that the employers within the mean- ct are the persons with whom the teacher has his contract of service. In the case of pro- s, therefore, the persons liable will be the local thority. In the case of non-provided schools, rs of a teacher for the purposes of the Act ly speaking, the managers of the non-provided Board is also advised that the payment of n in cases of accident has now become a cident of the employment of teachers, and t, subject to the consideration of the facts of ar case, the managers of non-provided schools to be indemnified in respect of any compensa- them under the Act by the local education pon whom the maintenance expenses of the nposed.

NDUM included in the annual report of the of Headmistresses, dealing with the domestic irls leaving school at sixteen, raises a question portance. The memorandum begins by insist- association " is keenly alive to the fact that a great advantage to the nation at large if all ng secondary schools could receive a thorough he domestic arts on scientific lines, such train- ven as late as possible in the school career." ng this view, the association recognises that ious difficulties in the way of such a training ls, who must earn their own living without any cases, the memorandum states, the difficul- perable. The bulk of these girls hope to s or teachers; domestic work, as at present ffers no career to the middle-class girl who her living outside her own home, although it which in itself would attract her.

THE memorandum, inconclusive though it is so far as its recommendations are concerned, may lead to a consideration of the character and aim of the curriculum of the ordinary secondary school for girls. There appears to be no consensus of opinion as to what constitutes an ideal school preparation for a girl of the "middle classes." The present curriculum in girls' secondary schools is a very close copy of what has proved more or less satisfactory in boys' schools. It is true that botany is often substituted for chemistry and needlework for manual training, but essentially the course is the same in both cases. Does this condition of things demonstrate the essential similarity in the educational needs of boys and girls? Or, does it mean that, having proved the necessity for secondary education for girls, the estimable pioneers of women's education in the "eighties" had not originality enough to lay down the lines upon which the curriculum for girls should be fashioned, and contented themselves with slavishly copying the course of work provided for boys? In any case, the subject offers a fruitful field for inquiry, and we recommend the question to the attention of the Association of Headmistresses.

NAPOLÉON—Ajaccio, Notre Dame, Ste. Hélène—was the subject of a most interesting lecture delivered by Prof. A. P. Huguenet at Queen's College, London, at the end of June. M. Huguenet prefaced his lecture by laying it down as essential that a speaker should be, above all, interesting to his audience; he certainly realised his ideal on this occasion, as attention was riveted to the very close of the discourse. Starting from the observation that great men belong to the whole human family, and not to the particular nation they chance to be members of, he rapidly traced the general's birthplace, the intellectual superiority of his family, and his military achievements prior to reaching the zenith of his glory. At this point the constructive genius of Buonaparte was touched upon: the drawing up of the "code Napoléon," the organisation of State finance, the foundation of the Légion d'Honneur, the reorganisation of the Université de Paris, and the Concordat with Rome. If in the second act—Notre Dame—the hero was admirably depicted as tragedian and comedian (a compliment paid him by Pius VII.), in the *dénouement* sympathy was enlisted for the great criminal whom the lecturer pathetically compared with Prometheus filching fire for the human race.

Two courses of lectures open free to teachers will be given at Bedford College, London, during the Michaelmas term. One, on "Geology for Teachers of Physical Geography," by Dr. C. A. Raisin, begins on October 9th at 6 p.m.; the other, on "The Organisation of Nature-study Courses in London Schools," by Miss M. R. N. Holmer, begins on October 5th at 10.30 a.m. Syllabuses of the lectures can be obtained on application to the principal at the college.

THE Middlesex Education Committee and the Hornsey Borough Council have arrived at an agreement as to the provision of secondary education in Hornsey. A school for boys and a school for girls will be established first, at each of which the curriculum will provide for tuition up to the age of eighteen. If satisfactory terms can be arranged, the Stationers' Company's School will be the school for boys, while two high schools for girls at Stroud Green will probably be amalgamated and used temporarily for girls. The fees at both schools will be from three to five guineas per term, with a number of free places and reduced fees.

A REPORT recently adopted by the West Sussex Education Committee contains the recommendation that secondary schools for girls shall be erected at Chichester and Worthing. It is estimated that the Chichester school will cost more than £12,000. The cost of the Worthing school is estimated at about £13,500. The sites already approved afford space for the future erection of boys' schools, but before entering upon the provision of these it is proposed to approach the councils of the two towns for local contributions. No contributions are asked for the girls' schools, because they are considered to be a necessity for the county as a whole.

IN connection with the centenary of Mill Hill School, a fund is being raised for the provision of additional buildings and scholarships. Mr. Herbert Marnham, now president of the Old Mill-Hillians' Club, gave £10,000, by means of which a block of class-rooms has been built and is already in use. Lord Winterstoke, chairman of the Court of Governors, who was captain of the school sixty years ago, and has been one of its most generous benefactors, has lately given £10,000 to the Centenary Fund.

THE Lord Meath Empire Day challenge cup inter-all-secondary schools of the Empire, with the £5 5s. League of the Empire personal prize attached, has been won by C. H. H. Jerrard, of Brisbane Grammar School, Queensland. Subject: "The Conditions of Successful Colonisation." Essays competing for this cup and prize were sent in from South Australia and Queensland; Rhodesia; from four provinces of India—Bengal, Madras, Bombay, and Burma; and from Demerara as well as schools in many parts of England. The challenge cup inter-all-primary schools of the Empire, with the £3 3s. League of the Empire personal prize attached, has been won by Eva Fayan, of the Senior Government School, Jamestown, St. Helena. Subject: "The History of British India." For this prize essays were sent in from England, Natal, Transvaal, Orange River Colony, Rhodesia, Queensland, Bengal, Burma, Hong Kong, Mauritius, St. Helena, and Demerara. The judges of the Empire Day essays were Mr. H. W. Eve, Mr. E. D. A. Morshead, and Prof. Ernest A. Gardner.

A PARLIAMENTARY paper has been issued containing a copy of the draft Order in Council, providing that the term of office of the members of the Teachers' Registration Council shall be further continued until March 31st, 1908, or such other date as his Majesty in Council is pleased by Order to direct; and that the constitution of the Teachers' Registration Council shall, unless and until otherwise provided by Order in Council, continue as at present. The Order comes into force on August 1st.

THE Cambridge Local examinations commenced on July 15th at seventy-one centres in the United Kingdom and two centres in the West Indies. The total number of candidates was 3,332. This is the first year in which examinations take place in July as well as in December. An important change in the regulations for 1908, which may now be obtained from Dr. Keynes, Syndicate Buildings, Cambridge, is the issue of new schedules in botany for all the examinations.

THESE schedules show evidence of the change which is coming over the methods and aims of botanical teaching, and presumably may be regarded as an official recognition *of the new movement. A comparison of the new and old syllabuses shows that increasing* importance is to be attached to naked-eye work and to experiments by the students themselves upon living plants. in the requirements for senior candidates, mention is now made of the flowerless plants, in the study of flowering plants the use of the is recommended only, "at the discretion of t for the examination of organs the function of difficult to understand without some knowledg microscopic structure." Again, the number orders prescribed for study for both senior pupils is much reduced, and the teacher is w "the student should not begin the study of learning the characteristics of various natura Finally, it is evident that in the framing of th work in all three grades, the first object h emphasise the conception of the plant as a l and an efficient machine. The syllabuses can win the entire approval of all who recognise the value of botany.

AT a meeting of the Historical Associati University College, London, on July 6th, a Lor of the association was formed. Prof. A. F. chosen president, Miss M. B. Curran secretary Bazeley treasurer. A temporary committee was to draw up a draft constitution to submit to of the branch on the first Friday in October. ing paper was afterwards read by Mr. G. Laure on "History and Anthropology."

IN 1904 a new method of selection of boys Osborne College was sanctioned by the First Admiralty. This plan for the supersession of examinations was described in an article in T WORLD for April, 1904. The method has prov cessful, we understand, so far as Osborne concerned, and seems likely gradually to be other authorities in the place of the more ortho ship examination. The headmaster and g Clayesmore School, Pangbourne, announce th to follow the lead of the Admiralty in their a major and two minor entrance scholarships. T offering these scholarships is to attract boys t who up to the age of fourteen years have been broad and liberal lines, without any attem specialisation. What will be regarded as mos will be such work as evinces accuracy, th originality. Each candidate will be interviewe by the examiners, and the report of forme schoolmasters will receive consideration.

ALL children attending the school dental clini burg for treatment now receive a pamphlet co following advice: "At the age of two and a every child has twenty teeth. The first perm appears at the back of the mouth in the Permanent teeth replace the milk teeth betwee of seven and fourteen. The second molars ap twelfth year, and the third molars, or wisdom the eighteenth birthday. Sound teeth are n the health of the stomach and of the whole milk teeth are of more importance for the chi permanent teeth are for the adult. Sound mi a condition of sound permanent teeth. The be brushed every morning, and especially every a brush of medium hardness. A salt water sol be used, and every second day a preparatio Twice a day the tonsils should be cleaned Every half year, from the age of three upwards

examined by the dentist. As soon as teeth, and the milk teeth, begin to decay they must be filled the will result. The mouth must be kept clean; all roots which have not been filled must ed, and all tartar must be removed. Artificial but a poor substitute for natural teeth. Good n means easy digestion."

SCOTTISH.

k interest attached to this year's Leaving examination papers, as they mark the close of ystem of individual subjects and of end-term ons. Few will be found to regret the former, their day they did notable service in raising ard of scholarship in the secondary schools of Comparing the papers set when these examina- in in 1887 with those of this year, no one can struck with the enormous advance that has been ch a comparison, indeed, brings home to one in nner the extent of the educational revolution that place during this period. In every subject there e of a vastly broader and truer conception of stitutes knowledge. The little peddling details, ication of exceptions, the extreme emphasis on work, have all disappeared. Instead, there is a or a firm grasp of general principles, an appeal elligence and the imagination, and a call at every clear and accurate expression. The Education nt is certainly entitled to rank as an educational by its record in the field of secondary educa- course, the initiative has seldom come altogether ut it, at least, has been quick to respond to every al advance that had a considerable body of d expert opinion behind it.

glish and modern language papers perhaps bear e of the newer and better methods now common. r English paper was a perfectly delightful paper, within the range of the average pupil. The per was distinctly to the difficult side. To ask sixteen and seventeen years of age to compare of language, &c., three translations of the same rom Homer, and to assign each of these extracts iod, is making too big a demand on pupils and The first part of the question is meaningless and save to a student of Homer in the original, and airly advanced one. The papers on modern reflected strongly the prevailing tendency in the of these subjects, and the "direct" method is e on all the questions. The papers in Latin k, though by no means unfair in themselves, are so in comparison with those in modern languages. l after a three years' course should be able to get n the latter, while it would take a very good ir pupil to secure anything like fair marks in Now that the "group" certificate is fairly d, a strong endeavour should be made to secure g like equality of standard between the optional of the group. This year modern languages are a tion" indeed.

sition of the Education (Scotland) Bill seemed so s, if not hopeless, last month, that a deputation ewhat unique kind was appointed to wait upon e Minister in regard to it. The members of the deputation were representative of the leading ards and of the Educational Institute. This is time that the *pressure of common interests* has brought these bodies together, but it is hoped it will be recorded for a precedent that will have many successors. The Prime Minister has written to Mr. Alexander, Clerk of the Edinburgh School Board, who was making the arrangements, stating that he did not think a deputation necessary at this time, as he was already thoroughly in sympathy with the desire to pass the Education Bill this session. He was quite aware, he said, that the long delay in passing such a measure was greatly detrimental to the educational interests of Scotland, and assured the educational bodies concerned that the Government would do all in its power to pass the Bill. These words are very satisfactory so far as they go. But having regard to the state of public business in Parliament, and to the time available before the end of the session, there is just a suspicion in many quarters that these are but "words, words, words." For our part we accept them as expressions of the honest intention of the Government, and still hope for the passing in some form of the Education (Scotland) Bill.

At last month's meeting of Glasgow University Court it was agreed to approach the Privy Council with the view of obtaining an amendment of the ordinances in regard to the curriculum and the length of session. It was also resolved to appoint in the Arts Faculty an official adviser, who would guide the students in their choice of subjects. The question of fixing an inclusive fee for Carnegie Trust beneficiaries was also under consideration, and general approval of the principle was expressed. It was remitted to a small committee to consider what this fee should be.

IRISH.

A movement is on foot for starting a Classical Association for Ireland. The Standing Committee of the Royal University having referred the question of adopting the reformed pronunciation of Latin to the Board of Classical Examiners, the latter called a representative meeting of professors and teachers of classics to discuss the feasibility of establishing some form of classical association to consider this and other matters for the improvement of classical studies. The result was the formation of a large provisional committee representative of Trinity College, the Queen's Colleges, University College, Magee College, the Intermediate Board, and Roman Catholic and Protestant secondary schools. A circular is being issued inviting support for the proposed association, the object of which is stated to be "to furnish opportunities for an interchange of views among persons interested in Latin and Greek studies, for the suggestion of improved methods of teaching, and for the general promotion of classical knowledge." The object is thus seen to be not inimical to other societies or other branches of study, but intended to foster and improve the teaching of classics *per se*, for which there is ample room in Ireland. It will also be useful in bringing together members of different creeds and parties to discuss some problems of education which they have in common. The present intention of the committee is to hold a general meeting in the autumn, about the end of September, formally to inaugurate the association. The provisional hon. sec. is Mr. J. Thompson, 14, Brighton Road, Dublin.

The debate in the House of Commons on the Irish university question raised on the Irish estimates for the Queen's Colleges shed some rays of light on the Government's attitude towards it. Mr. Birrell disclaimed any intention of shelving it, but it is clear that he thinks Mr.

Bryce's scheme requires modification. His position is that no University Bill is likely to pass unless it is the result of general agreement and a friendly conclusion, especially when the composition of the Government's forces in the House is considered. His own object, therefore, is during the autumn to try to secure all-round support for a measure to be submitted to Parliament next session. His attitude to Mr. Bryce's scheme was semi-apologetic. It was not, he said, an impossible solution, in spite of opposition from Trinity College, but some of the heads of colleges who had supported it had not fully grasped its nature; he was therefore communicating with persons who had supported it in order to find out if they would equally support any other possible solution. Mr. Bryce's scheme, therefore, is to be modified in such a way as to reduce the opposition and to secure general support for the solution of a vitally important problem.

THE General Assembly of the Presbyterian Church in Ireland had in June two important educational questions before it. The first concerned the report of the Higher Education Committee on the university question. This was in favour of the general lines of Mr. Bryce's scheme of a single university for Ireland, and although two or three amendments were proposed, particularly one by Mr. Thomas Sinclair, which protested against one sole university with constituent colleges as being detrimental to the interests of education, nevertheless the report was adopted. The figures were, however, small on both sides, and were not accordingly a convincing representation of either the pros or cons.

THE other subject was the bequest to Magee College, Londonderry, under Mr. Basil M'Crae's will. His estate amounts in all to between £70,000 and £80,000. The income of this is to be paid to his sister during her lifetime, and after her death to the trustees of the college. The trustees are to signify their acceptance of the bequest within two years after Mr. M'Crae's death. The college is now Presbyterian, with a theological department for the training of Presbyterian clergy; by the bequest, the college is to become undenominational, £12,000 to £14,000 being set apart to provide two professorships and for building improvements. Two "M'Crae lectureships" are also to be endowed, £500 is to be spent on two scholarships, and the residue to be applied in prizes. The committee produced a report for accepting the scheme, but, some difficulties arising with regard to the separation of the theological department from the college, it was referred back, with instructions to report again next year.

THE Technical Instruction Congress met this year in the City Hall, Dublin, under the chairmanship of Dr. Windle, President of Queen's College, Cork. A great deal of discussion took place on the Department's regulations with regard to syllabuses and grants, but Mr. Fletcher, the assistant secretary of the Department, being present, greatly helped to explain and smooth away difficulties to the satisfaction of the congress. The question of the provision of an efficient scheme of scholarships came up, and technical instruction committees were urged to provide apprentice scholarships for the more promising and deserving pupils. Another burning question was the urgent necessity for the immediate provision of adequate grants for the building of technical schools. Resolutions were also passed in favour of the control of evening continuation schools remaining under the National Board, and of the *necessity of the settlement of the* university question.

WELSH.

THE great event of the month is the laying of t tion stone of the new buildings of the Univers of North Wales, Bangor, by his Majesty the Ki luncheon, Mr. Lloyd George, M.P., after refer gigantic task of attempting to raise £200,00 population of peasants, shepherds, and miner thought they were entitled to crow over the sacri the Welsh people had made and were making for They had the highest education rate in the Unitec Wales was the only country where people brag their rates. For university and technical edu contribution they were making out of the rat times that of England; for secondary educatio tributions out of rates, it was nine times that o and there was not a country in Europe t compare with some of our Welsh councils in which they raised for the purposes of secondary education. What the city of Bangor had d inspire other cities. Bangor had contribute towards the college. Take the village of Ll Every householder, the workmen, the village the village blacksmiths, had contributed to t That was a great achievement. The people something themselves instead of waiting for t ment. In recognition of his services to educatio conferred the honour of knighthood upon Prin Reichel.

THE Lords Commissioners of his Majesty' have appointed a committee to inquire into and the character of the work accomplished by the U Wales and its constituent colleges, the financ and lines of development of the colleges, and th requirements for the staffs or otherwise. The the committee are: Sir T. Raleigh (chairman Rhys, principal of Jesus College, Oxford; Princ Macalister, Glasgow University; Mr. F. G. Og Prof. W. S. M'Cormick; and Dr. Alexander I of Downing College, Cambridge. Mr. G. L. the Treasury, will act as secretary to the commi

As had been announced in Parliament, the for the training of teachers in training colleges, contain the requirement, "In training college provision must be made for the teaching of W effect of this requirement, as explained by Mr. is that there must be on the staff of every trair in Wales at least one person competent to te It is also provided that students may obtain ordinary certificate, on leaving college, a staten fact that they have passed a satisfactory exar elementary Welsh, or (when this is the case) distinction in the Welsh language. There is pulsory provision of facilities for studying apparently it is left to the colleges to require (or students to study Welsh.

THE scheme for Welsh is given in appendix training college regulations. The preamble r optional course in Welsh will be divided into (a) elementary Welsh and (b) higher Welsh. S not be allowed to take the Board's examinatio Welsh at the end of their second year of trai they have passed the Board's examination in Welsh at the end of their first year of tra student may, however, be examined in elemen at the end either of the first or the second year

oceeding to higher Welsh." The aim of the udy is described as intended to lead the students appreciation of the best that has been written sh language, and to give them a command of ry Welsh. The books recommended, therefore, udied from the literary and stylistic rather than historical and philological point of view. A ssay will be set in the examinations in both i both the elementary and the higher Welsh amed for general reading and for detailed study, tion is required of unseen passages from Welsh i authors. In addition, in the elementary Welsh Welsh grammar are prescribed, and in the sh an outline course on the structure and idiom sh language.

novement in connection with the teaching of ld be noted. Several of the Welsh churches in e arranged for evening classes for the teaching or the benefit of Sunday school scholars. It is hat an attempt should be made to bring the to the requirements of the Board of Education rning classes.

CENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Les Précieuses Ridicules. Edited by G. H. iii+94 pp. (Blackie.) 8*d.*—This is really a on of Molière's very amusing play. Mr. Clarke Molière well, and this is by no means the first that he has edited. The introduction is full ng information, the notes give all that is re- there is a very good glossary. There is hardly o which we take exception. Mr. Clarke will f on reading "Le Menteur" we found it any- nonotonous; and we should be grateful to him bring forth good evidence for his statement écieuses first began to speak the uvular *r*. We heory, but thought it had been exploded long

Veige. By E. C. Hainsselin. 30 pp. (Blackie.) simple version of the tale of Snowwhite, suit- class of young girls. The author has added as to costume and the dances, and the music (in which, by the way, *or* rimes with *alors*). ıylet, which we recommend.

hoisies des Grands Écrivains Modernes. By tog. iv+102 pp. (Rivingtons.) 1*s.* 6*d.*—Fairly ts from V. Hugo, About, Thiers, Gautier, and ard writers, dealing with a great variety of Mr. Hartog has supplied French notes and nsisting of a *questionnaire*, questions on gram- lied), and *exercices écrits*, to which more atten- have been given with advantage. The number s is not formidable.

Delavigne, Le Diplomate. Edited by W. G. pp. (Rivingtons.) 1*s.*—Where are we going e line? Anything more silly than some of the led in this *comédie-vaudeville* it would be hard The plot has a certain amount of flashy but this does not suffice to make the book good our pupils. We prefer to say nothing about the and the misprints.

A. de Lamartine, Le Manuscrit de ma Mère. By L. E. Farrer. viii+62 pp. (Arnold.) 1*s.*—It was a happy thought to make this selection. The text is divided into twenty-four sections, to each of which there is a set of exercises consisting of a *questionnaire*, questions on grammar and word-formation, and a few lines for re-translation. The last are not always couched in simple and idiomatic English, which is a pity; to the rest of the exercises we can give almost unqualified praise. The vocabulary is altogether incomplete. The printing of *très* with a hyphen following is now quite out of fashion and should not have been retained; apart from this, we noticed very few misprints.

E. de la Bedollière, Histoire de la Mère Michel et de son Chat. viii+135 pp. (Arnold.) 1*s.*—This queer story, anonymously edited, quaintly illustrated, will serve for rapid reading in an intermediate class. The exercises appended remind us strangely of those in Mr. Hartog's series: *questionnaire*, a few crude grammar questions, a few slight suggestions for written work. The presence of misprints (*une miaulement, Académie français, mâitre*) detracts from the value of the book.

H. Seidel, Aus goldenen Tagen. Edited by Dr. W. Bernhardt. viii+144 pp. (Heath.) 1*s.* 6*d.*—This capital selection from "Reinhard Flemmings Abenteuer" makes a first-rate reader, describing as it does the amusements of German boys with much genuine humour. Dr. Bernhardt gives some account of Seidel's genial personality; an excellent portrait serves as the frontispiece. There is a complete vocabulary and notes which afford all the help that is required. Here and there we come across a Trans-atlantic touch, or a piece of "fine writing," but generally the notes are altogether satisfactory.

H. Sudermann, Teja. Edited by R. C. Ford. xi+69 pp. (Heath.) 1*s.* 6*d.*—The editor has written a good introduction to this fine one-act play, which will prove of great interest to an advanced class. Notes and vocabulary give evidence of careful work.

Goethe, Iphigenie auf Tauris. Edited by P. S. Allen. xlii+218 pp. (Ginn.) 3*s.*—It might be thought that we now have a sufficient number of editions of "Iphigenie." The only novel features here are the questions on the text, which are certainly good, and a vocabulary which is complete. The introduction is satisfactory, but would be better if there were less of it; why *will* American editors be so verbose?

Classics.

Life in Ancient Athens: the Social and Public Life of a Classical Athenian from Day to Day. By T. G. Tucker. xiv+212 pp. (Macmillan.) 5*s.*—Dr. Tucker has written a readable little handbook on an interesting subject. It is also a wide subject, so that in a book of this size there must be selection and avoidance of excessive detail; anything like an attempt to "rival the dictionary of antiquities," as Dr. Tucker puts it, must be a failure. This being so, the first two chapters seem to be out of place, discussing as they do the general questions of the Greek races and the topography of Athens. To a certain extent this is also true of chapter iii., which deals with bricks and mortar. The fourth chapter describes the social conditions of "citizens, outlanders, slaves, and women," interspersed with anecdotes; and a description of houses and household furniture follows. And now we turn to the most interesting part of the book: the daily life of the people. An imaginary citizen is followed from rising to

sleeping, and on the way his dress, surroundings, and occupations are described, partly with the aid of pictures. Touches of reality are added by the frequent quotation of a sentence from Demosthenes or Plato or Aristophanes, which come in neatly in the right places. A great deal of knowledge, and no small skill, is needed for such an account as this. At the end of the evening's enjoyment, Dr. Tucker adds with evident relish: "There were no after-dinner speeches." But perhaps he has forgotten the Symposium of Plato? The more serious employments of the men are reserved for later chapters. The story of the girl's life occupies the next chapter; there is plenty of humorous incident from Aristophanes and the delightful dialogue in Theocritus.

Our imaginary citizens, man and woman, marry, and have a son, whose existence is the excuse for a chapter on school life. It is comforting to see that, although education was not compulsory, military service was: and we see here how and when the lad had to serve, how he put on his armour, and how he rowed in his galley. Religion now engages our attention: sacrifice and festival, theatre and musical competition. The Assembly and the Law Courts follow; and finally, our hero is buried and sent over the Styx. A brief account of art and architecture brings us to the last chapter, the modernness of the Athenian, a slight analysis of his genius and tastes.

School scenes; vase by Duris. From "Life in Ancient Athens."

The book well deserves a place in the school library, and it will enable the learner to realise more fully the surroundings of those whose works he reads in the course of his studies. We do not think Dr. Tucker's style is beyond reproach (the greater part of p. 206, for instance, is out of place in the book, although it would be in place in the writer's mind); but it is worth reading.

The Virgil Pocket Book: Vergilii Musa Consolatrix. Arranged by S. E. Winbolt. With an Introduction by Arthur Sidgwick. xxviii+78 pp. (Constable.) 2*s.* net.—This is a tiny booklet containing a number of Virgilian extracts, varying in length from half a line to twenty, the Latin being faced on the opposite page by a prose translation. The extracts are arranged under these heads: Husbandry, Fame, Work, Patriotism, Death, Man, God. Doubtless, as it is said in the preface, no two scholars would make the same choice; but it is also true that no scholar with taste could fail to make a good choice. Most of the thoughts here given are worthy of remembrance, many are touching, some really consoling; all bring back to the scholar's mind the echo of past emotions, the memory of *delightful hours spent in company* with one of the gentlest sons of men. If we miss some old friends instance, is *sunt lacrimae rerum?*) we see oth have slipped our memory. We hope the edit sanguine in expecting those who read no La the book: to them especially we recommend i

Select Epigrams from the Greek Anthology J. W. Mackail. 176 pp. (Longmans.) 2*s.* 3*s.*—Prof. Mackail's edition of select epigra Greek Anthology, with translations, notes, tion, has long since been recognised for a st The present volume, one of Longmans' Poc contains the Greek text alone. It was a h indeed to publish this in a handy form; welcome companion to many a scholar's tra tains the quintessence of that priceless co nothing second-rate.

The Annals of Tacitus, XI.–XVI. Transla Symonc (Swan Cloth, 3 leather, 4 The first this tra already b our page is like i tending p withou faults or style is d pared wit but an E will get a of the wise.

Dona other La Acting. E 22 pp. (—These s short and and are the use o ren begi We wish more of t

Latin Prose and mentary Section. 32 pp. (Blackie.) 3*d.*—N entiates this from others of its kind. The ex are short, disconnected sentences, simple foll pound, illustrating various parts of accidenc then come prose extracts, and lastly verse, var to twenty lines. It is impossible to get any scraps like these, most of which are incompl of longer scenes; but the book will suit those books. For a rational scheme of reading t unnecessary.

Greek Reader. Vol. ii. Selected and English Notes from Prof. von Wilamowit *Griechisches Lesebuch.* By E. C. Mar pp. (Clarendon Press.) 2*s.*—The pieces in are: Stories from the Life of Aesop; parts Pericles, Alexander the Great, and Scipio; th the Celts, from Strabo and Posidonius; sev of Theophrastus; the battle of Salamis, fro

of Vacuum, from Hero of Alexandria. These ackneyed pieces, and the Greek is not easy; the roughly interesting, and will be an excellent more advanced students. The notes are judi- o what they should do, explain the text without reader's problems. If for nothing else, such a come because it shows what capital stuff may the byways of Greek literature.

History.

Modern History. By A. F. Pollard. xi+287 able.) 7*s.* 6*d.* net.—Prof. Pollard is, or should own to our readers as the author of the latest e Tudor Period, "Henry VIII.," "Cranmer," rset." In these lectures he gives us the essence s on this period, and on some matters in the century. They are eminently readable, full of l of maxims of wisdom on history and politics. could not do better than take this volume away for holiday reading. It is just as interesting and far more useful.

ductory History of England. Vol. ii., 1485– C. R. L. Fletcher. xv+583 pp. (Murray.) 5*s.* ers may remember that we reviewed the first his work some months ago, and that it attracted al reader" and the daily newspaper reviewers as it should be written." It is an attempt to tory in an unconventional way, clear of dryas- ur elder scholars, in the hope that they will its own sake. We have been interested in Mr. Fletcher would manage with Tudor and es. In the former, he is clearly under the his friend Prof. Pollard, to whom he dedicates ; but in the seventeenth century we wish he read more than "one quarter of the authori- mmended to him. In the remainder he might ve found reason to give a more sober account itans and Separatists of whom he has occasion His point of view is avowedly that of a moderate chman," and, though sympathising to a certain other parties, especially with Oliver Cromwell, parently not got to the heart of the movements eared during the Civil War and Commonwealth name of "the sects." With this exception, and ge one, his book may be recommended for our ries.

rated History of England. By W. S. Robinson. to 1660. viii+402 pp. (Rivingtons.) 2*s.*—This differs little, if at all, from other such short f our country. The illustrations are good, and explanations, not always complete enough; the ooth and clear, and there are not many varia- the newest orthodoxy as to facts. Among ations, perhaps the most important are the ward of Peter the Hermit in preference to Pope the instigator of the first crusade (p. 76), the w" (p. 166), the sketch of Wat Tyler and the 1381 (pp. 185 *sq.*), and the foundation of chools by Edward VI. (p. 286). How the author his interpretation of the letters "PR" on the 295 is beyond us. His ideas on the religious Stuart times want correction (pp. 301, 353, 363), s not the Westminster Assembly which made League and Covenant with the Scots (p. 360).

in English History from Original Sources. 1155–1485. By R. B. Morgan and E. J. Bailey. 216 pp. (Blackie.) 2*s.* 6*d.*—We have previously recommended the first volume of this series. Extracts are here given from mediæval chronicles, letters, &c. These are followed by an "analysis of sources," chief dates, and a list of tales illustrative of the period. There are also many good illustrations, photographic and others, with brief explanatory notes where necessary. A very good book.

The "Britannic" Historical Geography. Part i., 25 pp.; part ii., 25 pp. (Charles and Dible.) 3*d.* net each.—Each of these books consists of alternate pages, that on the left hand giving a summary of a period, that on the right containing clearly drawn outline maps illustrating the period, with only the names that refer to the period. They are very well done, and the price helps to make them eminently suitable as useful accompaniments to lessons on English history. We can very heartily recommend them.

The Byzantine Empire. By N. Jorga. viii+236 pp. (Dent.) 1*s.* net.—This book is a translation from the French by Mr. Allen H. Powles, and consists of a sketch of the history of the Eastern Roman Empire from the year 400 until the fall of Constantinople in 1453. There are also an epilogue, a bibliography, a chronology of the emperors, and a scanty index. The first sixty pages are hard reading, partly from the allusive style of the original (there is no explanation of many of the terms used), partly from the faults of the translation. Some sentences did not render any sense until one had turned them back into the French original. Later, the story appears to be smoother.

Voyages of the Elizabethan Seamen. Edited by E. J. Payne and C. R. Beazley. lxxii+415 pp. (Clarendon Press.) 4*s.* 6*d.*—This useful book consists of a general introduction on the work of the Elizabethan Seamen, and on the life and works of Hakluyt, followed by Captain John Smith's "Directions for taking a Prize." Then follow short chapters on Hawkins, Frobisher, Drake, and other sixteenth-century worthies, alternated with long extracts from the "Principal Navigations" of Hakluyt, all but one of which are not from his own pen. There are explanatory notes at the bottom of the pages, and elsewhere portraits of the heroes, and an index. The names of the editors are in themselves guarantees of the accuracy and thoroughness of the work. It should be in every school library, or at least should be quoted from in lessons on the period.

Tabulated Analysis of British History. 31 pp. (Oliver and Boyd.) 2*d.*—Lists of dates grouped under headings, divided, curiously enough, into "British History" and "Scottish History." The "terms" of Magna Charta are strangely misleading.

The Family. By H. Bosanquet. vii+344 pp. (Macmillan.) 8*s.* 6*d.* net.—To those who wish in an easy way to know some of the latest phases of the controversy as to the patriarchal theory of Sir Henry Maine, the first part of this work will be interesting and useful. The author traces the history of the family as an institution through the various ages of the world, regarded mainly from the economic point of view, and shows how and when the patriarchal family arose and flourished and passed away. In the second part she discusses the modern family, its constituent parts and its functions in the modern world. She has much to say on its relation to property, especially in land, and on the desirability of its mainten-

ance. Specially interesting to teachers should be the pages (in part ii., chapter xiii.) comparing and contrasting the work of the family and the school in the education of the child. There is no index.

Geography.

The Senior Geography. By A. J. and F. D. Herbertson. viii+263 pp. (Clarendon Press.) 2s. 6d.—This is the third book of the series "The Oxford Geographies," the other two volumes of which have been reviewed in former issues of The School World. There is the same somewhat "stiff" reading, even though in this case meant for the use of the upper school, as we criticised in the preceding books. The same features, however, of which we approved are noticeable in this, especially the way in which the relation of cause and effect is continually insisted upon, and the lesson driven home by the frequent insertion of educative maps and plans and cross-sections. Subject-matter is well proportioned—an important point in a geography that treats of the whole world—though here and there are minor lapses; New Guinea, for instance, is treated to a whole page, while the Straits Settlements are barely alluded to. The sketch maps are *very* sketchy—none the worse for that; indeed, they induce, or suggest, blackboard work *ad lib.* for the teacher. Some of them are rather indistinct, and many of them are innocent of latitude and longitude (work for the blackboard again!), though all are provided with scales. There are full explanations of these maps, either in footnotes or in the text itself. They are eminently instructive, even if crude and inartistic. Perhaps the main feature of the book is the division of the world into *natural* regions. The headings of the various sections are: "The Mediterranean Region," "The Mountain Barrier North of the Mediterranean," "Central and North-West Europe," "Russian Lands," "The Mid-World Deserts," and so on. The Barbary States, therefore, are read in the same section with Italy and Asia Minor, the Sahara with Arabia, &c. This has long been Dr. Herbertson's favourite classification of world-geography, and is, in his opinion, far superior to that of the usual arrangement in *political* regions. It has, of course, its good points, which, indeed, are quite obvious. At the same time, the old classification is not to be decried off-hand. It appeals to the practical side of geography, and it is beloved of public examinations and school curricula. A very little trouble, however, will enable teachers who believe in the "Europe—Asia—Africa" order of things to fit this excellent work into the scheme of their lessons. They should read it themselves, anyhow. It does not profess to be elementary, but rather to carry the teaching up to the point at which university work may profitably be begun.

A Junior Physical Geography. By F. O. Williams. 63 pp.; diagrams and illustrations. (Philip.) 1s.—This book is designed for all intermediate and secondary schools, but primarily to meet the requirements of the Central Welsh Board for junior certificates. As the work has already been much better done in several well-known books, we presume that cheapness is the main *raison d'être* of the present essay. But really Mr. Williams should not have used a Mercator projection map to show the *shape* of the world's land masses.

Northumberland and Durham. Anon. 40 pp.; map and pictures. (Pitman.) Paper, 3d.; cloth, 4d.—This is one of Pitman's "Local Readers" in geography and history. The story of the two counties is told in simple language *and prettily illustrated.* More attention is given to the *history than the geography.*

Sketch-map Geography: England and Wales. J Carter. 29 pp.; maps. (Relfe.) 8d.—The a already published a "Complete Geography of th from which this "sketch-map" is an extract. feature is a full-size map opposite each page of The book can be recommended to those who requ facts without much indication of cause and effect. lishers claim that "no essential fact is omitted, important details are ignored." They might h "and plenty of unessentials inserted."

Outline Elementary Atlas of Comparative G (Philip.) 1s.—These thirty-two maps are outlin from the coloured plates of Philips' well-kno atlas. They are printed on drawing paper, a afford good exercise in imitative colouring. Wh will serve a useful geographical purpose or n upon the teacher and the way in which he allow to use them. We think the various outlines r been simplified with advantage.

Mathematics.

An Elementary Treatise on Theoretical Mec J. H. Jeans. viii+364 pp. (Ginn.) 10s. 6d.- in a somewhat restricted sense that this trea called elementary, seeing that it includes a d generalised co-ordinates. Its claim to be elementary rests upon the fact that no previous of mechanics is assumed on the part of the that in the earlier portions of the book little of the calculus, and the range of mathematics successful reading does not extend beyond what boy knows as the elements. The treatment of differs very distinctly from that of the usual on the one hand it is not so full of practical and experimental results as to divert attentic general principles that constitute the science o while on the other hand it illustrates all the p ciples by carefully worked examples that wi every intelligent student, whether he aims at practical engineer or desires only to fit him profession in which a knowledge of the p mechanics is needed. The exposition is usuall and is not burdened with unnecessary mathema yet the book needs concentrated attention to b mastered, and, like every really good book, to be read and again read. A sufficiently l of examples is provided for the student's p student who can work through these will h a sound and fairly extensive knowledge of me a book for a university student or for anyone to gain a sound knowledge of theoretical me treatise can be thoroughly recommended.

A Compendium of Spherical Astronomy wi cations to the Determination and Reduction of the Fixed Stars. By Simon Newcomb. x (Macmillan.) 12s. 6d. net. This volume is the first of a projected series having the doub developing the elements of practical and theo nomy for the special student of the subject, a as a handbook of convenient reference for th working astronomer in applying methods The book now issued is intended to serve the of explaining improved methods of deriving the positions and proper motions of the fixed contains much valuable matter of a prelimin such as an excellent discussion of the theory observation and the method of least squares,

of the fundamental principles of spherical astro- part iii. the central subject of treatment is in an exceedingly thoughtful and remarkably ner, with a fulness and precision that are hardly ected from the comparatively small space it The appendix provides an excellent series of

for Secondary Schools. By Webster Wells. nswers) 51 pp. (Heath.) 5*s.*—This work does o be differentiated in any important particular as other text-books in common use, many, if the features mentioned in the preface being in the better classes of text-book. Allowance for this, one gladly recognises the merits of he statement of the rules is clear and expressed nguage, the illustrative examples are numerous e, the order of topics is well adapted for the pil, and the standard of rigour in demonstra- he whole good. A wise decision is, we think, he rejection of certain proofs (while retaining s) in cases involving infinite series; in fact, ions of this kind might have been made. The equivalent equations should, we think, be t an earlier stage, and might well be enlarged; o difficult in some parts for the beginner, yet on general lines is quite intelligible and affords actice. The book is on the whole well adapted and the number of examples is so large that will require no additional assistance of that

or the Graphical Representation of Algebraic By C. H. French and G. Osborn. viii+128) 1*s.* 6*d.* *Key to Graphs.* By F. Rosenberg. . (Clive.)—The chief change in this (the ion consists in the addition of chapters on the of graphs to arithmetical problems, harder the slope of graphs. By these additions the de more suitable for certain types of student, sonally we rather dread the tendency to the plications of graphical methods in arithmetic; netical problems are too apt to become mere n attempted graphically. From the algebraic however, the book is well written, and gives h both of solutions and of examples. The key seful to students who have no teacher to guide oth books the lines of the diagrams seem to o thick; surely there is no reason for making o very heavy as they are in most of the ven in those that are used for the solution of

: Chiefly Examples. By G. W. Palmer. swers) xlii pp. (Macmillan.) 3*s.* 6*d.*—As the dicates, the contents of this book consist xamples, but many fully worked examples are he practical hints contained in these cases are valuable. The book is intended to be used rt course in some quite elementary text-book, bably be found to contain quite enough for the il. The collection, so far as can be judged by strikes us as being unusually good; approxima- great, but not too great, attention; graphical confined within reasonable limits; logarithms l examples involving logarithmic calculations ; and the subjects of interest, discount, shares receive good treatment. A decided improve- is really *a return to an older* practice) is the inclusion of a compound interest table, as well as a table of four-figure logarithms. Altogether the collection well deserves the consideration of teachers.

Science and Technology.

Notes on the Life-History of British Flowering Plants. By Lord Avebury. 450 pp. (Macmillan.) 15*s.* net.—The outside of the book recalls the same author's "Scenery of England." Inside, the first impression is of an enlarged edition of that admirable little book, "British Wild Flowers considered in Relation to Insects," with contributions from the author's other works on seedlings, buds, stipules, flowers, fruits, and leaves. But this new book attempts a wider survey, a more catholic outlook. To the systematic botanist the characters of a plant are useful, because by them species are identified and distinguished. Lord Avebury proposes to begin where others have left off. To him the characters of a plant imply its relation and adjustment to the whole universe. In the introduction of forty-six pages are discussed such general topics as the relation of annuals and perennials to wet and dry soils, the sleep of flowers, arrangements in fours and fives, and the flanged girder theory of plant stems. The 400 remaining pages are a survey of British flowers. Under Ranunculaceæ most species are dismissed in about half a page each, but of Delphinium, Aconitum, and Aquilegia fuller details are given of the life-history of the flower, the species of insects attending it, and the manner of their access. The pollination of the flower is the dominant topic throughout the book; but the importance of the book lies in the recognition of the multitude of other relationships between plants and their environment. Thus under Berberis is discussed its relation as host to Æcidium, under Nymphœa its stomata, and turning the pages we read of the seed-dispersal of Geranium, the leaf-movements of Oxalis, the seedlings of Ulex, of parasitic mistletoe and insectivorous sundew—topics not all new, but here most conveniently accessible to the reader. The book is well illustrated, and a glossary of about one hundred words measures the author's freedom from obscure technical terms. His style is always terse and clear.

Heat, Light, and Sound. An Introductory Course of Practical Exercises. By J. R. Ashworth. 120 pp. (Whittaker.) 2*s.*—This is an excellent course of experimental work, suitable for junior students. The apparatus required is quite simple, yet sufficient to afford satisfactory results. Many of the experiments can be found in previous text-books; but this is no fault, since it is quite undesirable to introduce novel experiments solely on account of their novelty. Yet, in certain cases, Dr. Ashworth does good service in describing new methods in the simple treatment of difficult problems; we need only specify an experiment on the thermal conductivity of a solid. Would it not be better to use the terms "lower fixed point" and "higher fixed point" of a thermometer rather than the terms "freezing point" and "boiling point" on a thermometer, and to associate the latter terms only with the temperatures of solidification and vaporisation of liquids?

A Laboratory Course in Physics. By R. A. Millikan and H. G. Gale. 134 pp. (Ginn.) 2*s.*—This laboratory course is intended for the use of secondary schools. All branches of physics are covered, and the apparatus required is of a simple type. The authors maintain that the experiments do not presuppose any previous study of the subject; and they state that their students are neither

instructed nor advised to study their experiments before entering the laboratory, for each experiment has been arranged to carry with it its own introduction. Teachers will find several useful suggestions in the arrangement of apparatus, and it is satisfactory to find a sufficient treatment of the phenomena of fluid pressures. It is somewhat misleading to inform students that Ohm's law is $\frac{volts}{ohms} =$ *amperes*, and British students may not realise that *a nickel* is an American coin.

Time and Clocks. By H. H. Cunynghame. 200 pp. (Constable.) 6*s.* net.—This book gives a popular account of time and its measurement. The ideas of space, mass, and gravity are rapidly explained, and an interesting account of the origin of the names of the days and accounting for the order in which they occur follows. Sundials are described, and an illustration is given of the mechanism of a water clock. Sand glasses and oil lamps as measurers of time are referred to, and a slight sketch is given of the ancient ideas of science—indicated by the Almagest, Dante's Hell, and Galileo's Dialogues. The isochronous swings of springs and pendulums leading to the verge escapement, Huyghens' clock, and the grandfather clock, form an interesting chapter. After a brief account of electric clocks and chronographs, the book ends with an appendix on the form of teeth of wheels. More details of curious clocks—even at the expense of some of the "mechanics"—would add to the charm of the volume. On p. 33 there is a slip, "north pole" for "north pole of the heavens"; a letter is missing in Fig. 53; and the explanation of the method of finding longitude (p. 164) is not free from difficulty. At a somewhat reduced price, the book would be one to recommend as valuable to boys.

Technical Electricity. By H. T. Davidge and R. W. Hutchinson. 502 pp. (Clive.) 4*s.* 6*d.*—The authors offer this volume as a somewhat unusual combination of scientific principles and engineering practice; they intend it to give the reader a thorough working acquaintance with practical electrical engineering, and with knowledge based upon sound scientific principles. In all this the authors are successful. The various parts are devoted to dynamical definitions and units, electrostatics, magnetism, and current electricity. The last part is treated, of course, with far more fulness than the earlier parts, and occupies about three-fourths of the book. The authors have assumed no previous knowledge on the part of the reader, and the subject-matter is necessarily condensed. So concentrated is the treatment, that the young beginner would probably find difficulty in reading the book intelligently. We can strongly recommend it to those students of practical electrical engineering who have passed through a preliminary course of elementary magnetism and electricity, and also through a course of mathematics, including trigonometry.

Art.

Practical Wood Carving. By Eleanor Rowe. 213 pp.; 169 illustrations. (Batsford.) 7*s.* 6*d.* net.—Miss Eleanor Rowe, whose "hints" on wood-carving and chip-carving have already enjoyed wide and well-deserved popularity, now gives us the benefit of her wide experience in the more elaborate and comprehensive form of "Practical Wood Carving." Miss Rowe hopes that her book will appeal to the student, who will find therein all the information requisite for beginning his studies; to the *carver and teacher, who will find* inspiration and suggestions for further development; to the designe gaining some acquaintance with the practica the craft, will better understand what effec readily obtained and what are difficult and in and to the architect, who may be encouraged more carving in his buildings. That the book strongly to all who are interested in the subj no doubt whatever; we would go further deliberately that no one who, directly or indir as craftsman or connoisseur, is interested in w can afford to be without it. The volume is pr handsomely illustrated, and abounds with "dicta" born of long experience and ripe With a copious index and glossary, and a c table of styles, this handsome book takes its p as a standard work on the art of wood-carvin

Embroidery and Tapestry Weaving. By Christie. 400 pp. (John Hogg.) 6*s.* 6*d.* net author suggests, every woman is at heart a to whom deftness with the needle comes as heritance, then Mrs. Christie's book on "Em Tapestry Weaving" will appeal to a very la readers; that it cannot but be read with profi is evident. This volume forms the latest of Crafts Series of Technical Handbooks," edi Lethaby (who contributes a brief historical a art of embroidery by way of introduction), cordially recommended to art mistresses mistresses of girls' schools, who will find it of information and inspiration on sound Mrs. Christie is entitled, by virtue of her po Royal School of Art Needlework, to speak w on all the various branches of this subject, an largely on the vast resources of our museums for specimens of work wherewith to illus marks; the result is an extremely interesting readable volume, full of practical informati novice or expert.

Drawing of Foliage and Foliated Design. 48 plates. (Burns and Oates.) 2*s.* 6*d.*—Th consists of twenty-four plates of photograph plants and flowers, interleaved with designs various flowers. The natural specimens sel presentation have evidently been chosen with care and judgment, whilst the skill shown in ment in such a manner as to emphasise their features and lines of growth, without any loss of freedom, calls for the highest praise. ing of foliage, either from photographs or the student's chief difficulty is generally begin"; in this connection the supplement suggesting methods of procedure are entire and should prove very helpful to the student. *d'être* of the designs is a little difficult to If they are intended as a course of instructi of designing, one fears that the youth designer's ideas on the subject will be in chaotic state at the end of the course, th gathered from these plates being that, to m one must take a spray or plant, symmetris it meander round in a world fantastic ma completely fills the space to be decorated dividually, the designs vary considerably i we are decidedly of opinion that their inclu otherwise excellent scheme of work.

CORRESPONDENCE.

do not hold themselves responsible for the expressed in letters which appear in these As a rule, a letter criticising any article or inted in THE SCHOOL WORLD *will be submitted tributor before publication, so that the criticism may appear together.*

The Pronunciation of Latin.

w of the old bugbears raise their heads once letter of "J. O'H. P." in the July number OL WORLD. Let me offer a word in reply.

pronunciation does not "aim at the *i.e.*, the recovery of the exact intonation of . It aims at reproducing both quantity and the ancient vowels, and the quality of the this can be done, because we have abundant go upon. It is quite easy to do if begun at g; and since the English vowels are degraded en on educated lips, this is an essential thing to be any beauty in the sound of the Latin We think that half a loaf is better than no hope, moreover, that the training in producing n thus will react on the speaking of English; it helps to make the organs of speech flexible is w pronunciation does not, in my experience, young boys."

d objection is based on a double mistake. objectors have mistaken spelling for sound. *l* looks to the eye like *civis*, they forget that, ng to their own pronunciation, one is *sivvil*, *h-vis* (I shrink from a phonetic transcript, lest ew bugbear). So with *national* and *nation*, thers. From the *sounds* no one would suspect ; and the *spelling*, which does suggest it, same, anyhow. The second mistake is to the class of words in question comes from It does not; it comes from the French. There- unciation which suggests a direct derivation is faulty; and that which we recommend, resembles French, is correct in its suggestion.

paragraph of our critic I confess I do not The reformed pronunciation is condemned "classes Latin with modern languages"—I critic means modern foreign languages—and tion is recommended which classes Latin with hough English is a modern language, and the it of mind involved in the study of Latin" is "at variance" with English as with French

The critic goes on to assume that those who med pronunciation are more likely to make ts" than others. He gives no evidence for tion. I have seen "flying shots" made in ens which could hardly be surpassed in any ronunciation; *e.g.*, "The oysters sang sweetly ." Nor is there evidence given for the next hat, where Latin is spoken, there are "more mples of bad syntax, bad grammar, and bad than where it is not; and this statement, if bearing on the question with what pronuncia- hould be spoken. I do not think that there is a generalisation on the effect of spoken Latin these effects are only known to those who nd imagined by those who have not.

sentence, no doubt, contains the pith of the schoolmaster is shocked at having to "change ods for new." The schoolmaster is shocked at earning. He has my sincerest sympathy.

ol, Cambridge. *W. H. D.* ROUSE.

Terrestrial Globes used as Sundials.

TEACHERS of geography may be interested in the terrestrial globe shown in the accompanying illustration, and the instructive exercises which may be performed with it. The globe is mounted so that it can be adjusted with the axis parallel to the earth's axis, by making the angle between the axis and the base equal to the latitude of the place of observation. When adjusted in this way, the globe is in the same position with regard to the sun that the earth is in space. If the globe is fixed so that the Greenwich meridian is in a north and south plane, the sun will be over this line at twelve noon. In the mornings the sun is over meridians east of that of Greenwich, and in the afternoon it is over meridians west of Greenwich.

A brass half-meridian can be moved around the globe to follow the sun. To find apparent time, this half-meridian is turned until the shadow is narrowest; and the hour crossed by this shadow can then be seen by the clock figures on the equator. A cross-piece which slides on the half-meridian can be adjusted so that it is also under the sun. The point where the shadows of the half-

meridian and cross-piece intersect marks the point of the earth where the sun is exactly overhead at the instant of observation. The globe thus shows at any time when the sun is shining (1) the parts of the earth where it is noon, and also where it is day and night; (2) the apparent time at the place of observation; (3) the point where the sun is exactly overhead; (4) the limits of the tropics where the sun can be overhead, from 23½ degrees north latitude to 23½ degrees south latitude.

Any terrestrial globe having a means of adjusting the axis at the right inclination for the place of observation can, of course, be used in the same way by fixing it so that the Greenwich meridian is in a north and south plane. At any instant when the sun is shining, the illuminated half of the globe will then show the hemisphere which is in daylight, while the dark half will show where it is night. To use such a globe as a sundial, however, it is necessary to have a means of finding the meridian over which the sun is shining at the time of observation, and its distance, in time or angle, from the Greenwich meridian.

The globe here shown was made for me by Messrs. Newton and Co., 3, Fleet Street, London, E.C. I am

trying to get a terrestrial globe made in pottery or other material which will stand the weather, so that it can be fixed out of doors in the manner described, and can be used to indicate apparent time. In an ordinary sundial, the style is fixed and the moving shadow shows the hour on the dial; with a globe and a movable half-meridian, the apparent time can be found by bringing the half-meridian directly under the sun.

It may be objected that a globe fixed as suggested, and used to show where day and night exist at different hours and seasons, will give the erroneous impression that the sun actually revolves around the earth once in twenty-four hours. I consider, however, that it is far more important to have clear ideas of the apparent movements of the sun during the day and year than it is to accept the dogmatic statement that these movements are due to the earth's rotation and revolution. So far as geographical conditions are concerned, precisely the same phenomena would be produced if the sun really revolved around the earth once a day and moved through the ecliptic once a year, instead of the earth rotating on its axis and revolving around the sun.

R. A. GREGORY.

Low-Pressure Sensitive Flames.

THE best form of sensitive flame is undoubtedly that used by Tyndall, burning gas under a pressure of 10 inches or so of water; but there are occasions when high-pressure gas is not at command. It may therefore be of service to describe some observations lately made in connection with sensitive flames burning low-pressure gas from the mains.

The well-known low-pressure sensitive flame of Govi and Barry has the defect that it is practically invisible. The roaring of the flame when it is excited is apt to be masked by the sound of the whistle or bird-call used to excite it. What is wanted for demonstration purposes is a luminous sensitive flame. I am aware that so far back as 1867 Mr. Barrett described a low-pressure flame of this type in vol. xxxiii. of the *Phil. Mag.*, but I do not find his V-shaped aperture easy to make. With scissors, as recommended, I quite failed to get satisfactory results, and when the V notch is filed my experience has been that the jet is very apt to crack or splinter in use. Moreover, the flame requires for its satisfactory working a gas pressure of more than 3 inches of water.

Fig. 1 represents a modification of the sensitive flame which I have found well adapted for demonstration purposes. The brass tube B is fitted with a platinum burner of 1·25-inch aperture. To the sliding ferrule F a small cup C is attached by means of the wire arm A, so that the height of the cup above the burner may be adjusted, and at the same time the cup may be rotated round the axis of B. The cup consists of a piece of thin brass tubing 1 inches in diameter and 1½ inches deep. The base of the cup consists of copper gauze, 28 meshes to the inch. When the distance between the burner and the gauze is about 1 inch, it will be found that on sounding a pitch-pipe held near the tube B the bright luminous flame splits into two smaller divergent cones, as shown in the sketch of the cup X, X in Fig. 1. The gas should now be turned on until the forked flame shows signs of roaring. This usually needs a gas pressure of about 1½ inches of water. When this pressure is obtained a shrill note causes the two flames to join together into a single luminous tongue of flame, shown in the sketch in the figure. This flame is extremely sensitive to the slightest sound, and the notes of the pitch-pipe, for the diatonic range of a Bird-call, about 2 inches. Beyond this distance the Bird-call just fails to make the flames X, X coalesce completely, though they still jump one another quite perceptibly. Sound shadows t board about 9 inches square can be strikingly with this flame, using as exciter a bird-call from the flame of about 30 cm. The fla respond equally well whether the forks are broadside on to the source of sound.

Fig. 2 illustrates another modification of flame. A glass jet J drawn out to an 1 20 inch is mounted so that it can be rai or rotated round the axis of the arm A. (To motions it may be passed through a cork C, t also passes the tube S with sprung end disc of gauze, 28 meshes to the inch and diameter. P is a pilot jet which passes thr tight-fitting hole in the gauze and terminat with the level of the gauze in a small apert size of which is not of importance. The h

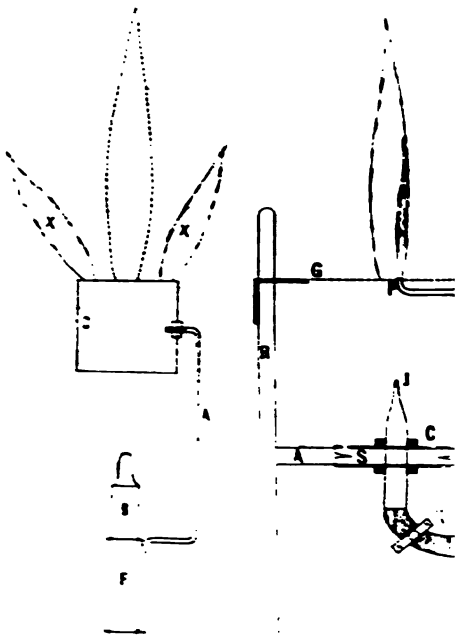


FIG. 1. FIG. 2

adjusted until the flame when lighted above ... and on the point of roar ... S its position ... so arranged that its edge just meets ... flame ... jet. The combined ... J and P is ... reason of the excess of air dragged up b ... gas from J. When a sound is made th ... down ... the pilot jet burns ... bright ... This form of flame is ... though I do not reg ... so well ... demonstratio ... pressure ... 3 inches of wa ... modification of ... sensitive ... rather less ... A 2-inch disc ... gauze ... —is fastened ... a talc chim ... glas ... aperture ... until the fl ... point ... being remov

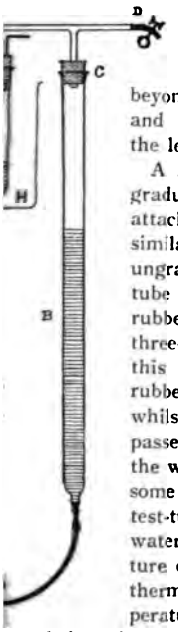
This will require some 2½ inches of gas The chimney is then put in position in its ng. The flame is almost without luminosity, excited by a shrill sound it assumes the form ous, writhing ribbon, which curls up a full inch chimney top. This flame, though much longer of the two previously described, has not their ightness.

not seem to be recognised by purveyors of that a certain proportionality between the jet d the mesh of the wire gauze must be observed o obtain a satisfactory sensitive flame; for I e a so-called sensitive flame burner, purchased ding firm of scientific instrument makers, in proportionality is so totally disregarded that the nothing more than a laboratory ornament in rass.

DOUGLAS CARNEGIE.

as for the Determination of some Chemical Equivalents.

wing description of a modified form of Hempel's ly prove useful in school chemical laboratories etermination of the equivalents of zinc, mag- nd aluminium. This apparatus saves time in manipulation, for when once set up it is easy to determine the three equivalents quickly with little further trouble beyond the introduction of the metal and the subsequent adjustment of the levels of the water.



A is a 50 c.c. pinch-cock burette graduated in tenths of a c.c., and is attached by rubber tubing to a similar, though somewhat wider, ungraduated glass tube B. This tube is fitted at C with an india-rubber cork through which passes a three-way tube. One passage of this tube terminates in a piece of rubber tubing and pinch-cock at D, whilst the other end of the tube passes through the cork fitted into the wide test-tube E, which contains some strong hydrochloric acid. This test-tube is placed in the beaker of water H so as to keep the temperature of the gas evolved constant. A thermometer T indicates the temperature of the bath. A piece of , sealed at the top end, is fitted through the cork t-tube, and close to this glass tube a piece of e, flattened at the bottom end, runs through the is piece of wire W acts as a trap to the weighed ed in the short piece of sealed tube.

mination is carried out in the following manner: of weighed metal is placed in the short sealed e copper wire turned round so as to prevent the n dropping out. The test-tube is fitted on, and of water brought up into position. The pinch-) is opened, and the graduated tube A (which he movable one) is raised or lowered until the e water in it is nearly at the bottom graduation. i-cock is now closed, and the final adjustment placing the graduated tube against the un- one, and taking the reading when the level of in each tube is the same. Now turn the copper d so that the metal falls into the acid. The liberated forces the water down in B and up into A. It is important that, whilst this is taking place, the levels of the two columns of water should be kept about the same by lowering A as the volume of gas increases in B. This prevents undue pressure. Finally, the levels of the water are adjusted, and the height of the water in A is again read off simultaneously with the temperature indicated by the thermometer. The difference in the two readings of the burette is the volume of hydrogen evolved at the temperature and pressure of the laboratory. The height of the barometer at the time of the experiment must also be noted.

It is highly important to note that this apparatus *may not* be used for the determination of the equivalent of sodium by its action on water. To do so would inevitably lead to a serious explosion, on account of the explosive mixture which would collect in E being fired by the small scintillations which sometimes accompany the action of sodium on water. The apparatus for the sodium determination has already been described in THE SCHOOL WORLD for August, 1906.

The following are actual records of experiments carried out by means of this apparatus in the school laboratory; and since the determinations were made one after the other, the barometric height and temperature are the same in each case. This fact saves much calculation:

Equivalent of Aluminium.

Weight of aluminium = 0·033 gram.
Volume of hydrogen evolved = 45·1 c.c.
Temperature ,, ,, = 13° C.
Height of barometer = 734·5 mm.
Pressure of water vapour at 13° C. = 11·1 mm.
∴ True pressure on the hydrogen = 734·5 − 11·1 = 723·4 mm.
The volume of the hydrogen at N.T.P. would be

$$45{\cdot}1 \times \frac{273}{286} \times \frac{723{\cdot}4}{760}$$

log 45·1 = 1·6542 log 286 = 2·4564
log 273 = 2·4362 log 760 = 2·8808
log 723·4 = 2·8593 5·3372
6·9497
5·3372
1·6125 = log 40·98

40·98 c.c. of hydrogen at N.T.P. weigh 40·980 × ·00009 = 0·003688 gram.

0·003688 gram of hydrogen is liberated by 0·033 gram of aluminium.

∴ 1 gram of hydrogen is liberated by $\frac{0{\cdot}033}{0{\cdot}003688}$ gram of aluminium. = 8·95 nearly.

Equivalent of Magnesium.

Weight of magnesium = 0·046 gram.
Volume of hydrogen evolved = 45·9 c.c.
The volume of the hydrogen at N.T.P. would be

$$45{\cdot}9 \times \frac{273}{286} \times \frac{723{\cdot}4}{760} = 41{\cdot}70 \text{ c.c.}$$

41·70 c.c. of hydrogen at N.T.P. weigh 41·70 × 0·00009 = 0·003753 gram.

∴ 1 gram of hydrogen is liberated by $\frac{0{\cdot}046}{0{\cdot}003753}$ gram of magnesium. = 12·26 nearly.

Equivalent of Zinc.

Weight of zinc = 0·113 gram.
Volume of hydrogen evolved = 42·3 c.c.
The volume of hydrogen at N.T.P. would be

$$42{\cdot}3 \times \frac{273}{286} \times \frac{723{\cdot}4}{760} = 38{\cdot}42 \text{ c.c.}$$

38·42 c.c. of hydrogen at N.T.P. weighs 38·42 × 0·00009 = 0·003458 gram.

∴ 1 gram of hydrogen is liberated by $\frac{0{\cdot}113}{0{\cdot}003458}$ gram of zinc. = 32·68 nearly.

Magnesium in the form of ribbon, aluminium wire, and zinc foil have been found to give good results. A certain amount of insoluble impurities will be found present in the zinc foil, and remains behind as a black residue after treatment with acid. The percentage weight of the impurities may be estimated separately with a larger amount of zinc, say 5 grams, and an allowance made for the weight of impurities in the zinc taken for an actual equivalent determination. E. T. BUCKNELL.

St. Philip's Grammar School and the Oratory School, Edgbaston, Birmingham.

SINCE writing this description, I have been kindly informed by Mr. E. Lewis, Oundle School (to whom I am much obliged), that the method described above is also advantageously applicable to the determination of the equivalent of calcium metal (using water with the merest trace of hydrochloric acid in the large test-tube instead of strong hydrochloric acid), and that good results are thereby obtained. The metal can be procured nearly pure, and at a price which does not prohibit its general use (about 1s. 3d. per oz.). E. T. B.

A New System of School Examination.

MAY I direct the attention of your readers to a new system of conducting school examinations? Although opinion about examinations in general is undergoing a considerable change, and their value is being discounted by many, they still remain with us as a necessary evil, so that it appears to me advisable to consider any changes they may be undergoing.

Leeds and Bristol Grammar Schools have come to an arrangement this year by which the staff of the one school examines the boys of the other, and *vice versa*. The advantages of an innovation of this kind are many, and the drawbacks appear to be few.

The first benefit to be derived is that of the interchange of ideas. The staff of one school will get an insight into the lines upon which the staff of another is working. Take a case in point. Science and modern language masters have to be exchanged for practical and oral work respectively. Examinations in these subjects, as in others, are then not only useful as an incentive to the boy, but also as means of instruction to the teacher.

Secondly, if this system was adopted it would do away, to a great extent, with outside examiners, who often perform their work after the manner of inspectors. Schoolmasters know the difficulties they have to cope with, and are more capable of being thorough in judging the merits and demerits of masters' and boys' work than those who sometimes are only indirectly connected with the scholastic profession and sometimes even not at all. Fault-finding is not likely to gain the upper hand with teachers. They will, at any rate, not set out with the main object in view of finding out what the boys do not know, but rather try to discover what they do.

Lastly, from a monetary point of view, the new method has much in its favour. Where money is allotted for examination purposes it should surely find its way into the pockets of underpaid schoolmasters rather than into those of men who could, in many cases, very well do without it.

In short, whether it be an improvement or otherwise, this fresh departure in examinations might be watched with interest, as should it gain a firm foothold it may be expected to spread rapidly, and perhaps ultimately to become general. A. B. YOUNG.

Bristol Grammar School.

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Hence, $x=\frac{1}{5}(1\pm\sqrt{41})$.

$5x^2+2x+8=0$
i.e. $x^2+\frac{2}{5}x+\frac{8}{5}=0$
i.e. $x^2+\frac{2}{5}x+(\frac{1}{5})^2-\frac{1}{25}$
i.e. $\left(x+\frac{1}{5}\right)^2-\left(\frac{\sqrt{-39}}{5}\right)$
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The School World

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05. SEPTEMBER, 1907. SIXPENCE.

NGLISH SCHOLARSHIP SYSTEM: 5 PRINCIPLES AND RESULTS.[1]

By Prof. M. E. SADLER, LL.D.
and
H. BOMPAS SMITH, M.A.
aster of King Edward VII. School, Lytham.

paper of which this is a summary is the ıtcome of an inquiry conducted by the ıthors in different parts of England during ner of 1907, with the help of officers of ıcation authorities and of headmasters, resses, and other teachers in elementary ındary schools.

ther more than four hundred and fifty ications, oral and written, were received, authors are much indebted to their ıts for the great amount of trouble taken ving information.

cholarship system is a distinctive mark sh education. Its beginnings date from lle Ages. Its modern developments are d with the growth of competitive exam- upon which it largely depends. There ys been in England a readiness to help youths of exceptional promise to intel- pportunities appropriate to their powers. e has also been a great reluctance to ondary and higher education under the ntrol of the State, and consequently a e for a variety of semi-independent epresenting different social traditions and view. These two facts in combination in the scholarship system, to which in Victorian era the general belief in the f open competition gave a wider vogue. he last generation, however, new forces jected English educational arrangements vy strain. Improved higher education me on civic and economic grounds a necessity. New sections of the community anding access to secondary schools. It ecessary, therefore, either to extend the ip system or to embark upon a policy or nearly free, secondary and higher n in institutions under direct public con- e latter policy would have been wasteful ng educational resources. Nor is the remission of school fees sufficient by itself to enable the poorest scholars to postpone the time of their entrance into wage-earning occupations. Maintenance allowances are also necessary. The scholarship policy has enabled the local authorities established under the Education Act of 1902 to meet in the quickest and most economical manner the demand for extended facilities for secondary education, a demand accelerated by new Government regulations for the training of pupil teachers. The fact that many of their pupils pay fees has enabled the secondary schools to carry on their work with less public aid than would otherwise have been necessary, and more public money has thus been made available for maintenance allowances. Thus through the rapid extension of the scholarship system, which links together schools of different types under the general supervision of public authority, much has been done within the last five years to construct a framework of national education.

The five chief branches of the English scholarship system are:

(1) Scholarships tenable at universities or other places of advanced education.

(2) Scholarships tenable at the great secondary boarding schools ("public schools").

(3) Junior scholarships from the public elementary schools to the secondary day schools.

(4) Intermediate scholarships enabling pupils to prolong their secondary education.

(5) Scholarships tenable at evening schools and classes.

The new regulations for the payment of Government grants to secondary schools may greatly affect the present situation. But the scholarship system has, at any rate, served as a useful expedient in a time of rapid social change. There is some reason to think that the offer of junior scholarships has been too profuse. Improvements in the elementary and secondary schools themselves are far more important than an indefinite increase of facilities for the transference of children from the one to the other.

The great diversity of the conditions and of the methods of administration in different areas prevents any generalisations as to the working of the scholarship system from being universally applicable, but the following have been the chief results

[1] paper read before the Educational Science Section of the ation at its meeting at Leicester, 1907.

of the system as it has developed in England during recent years:

(1) The scholarship system has made the English universities, old and new, the educational goal of hundreds of students of good ability who under former conditions would have been shut out from academic studies.

(2) Many boys and some girls of exceptional ability have been helped forward to high academic distinction.

(3) A large number of boys and girls from public elementary schools have been enabled by means of scholarships to obtain access to secondary schools. This has been especially the case during the last five years, in consequence of the operation of the Education Act, 1902, and the requirements of the new regulations for the training of pupil teachers. In the year 1906 nearly 12,000 scholarships and bursaries were awarded by local education authorities to enable children to pass from primarv to secondary schools. Of these rather more than 5,000 were confined to boys, about 4,600 to girls, and the remainder were open to boys and girls on equal terms. Assuming that on an average these scholarships were tenable for three years, this would give a total of 36,000 scholarships running concurrently. Besides these general scholarships there were awarded in the same year rather more than 10,000 scholarships and bursaries confined to intending pupil teachers. Of these, 1,787 were for boys, and 4,915 for girls. In some areas the number of entrance scholarships to secondary schools is very large. In London about 2,000 are given annually, and in the Isle of Wight one such scholarship is given for every forty children in attendance at the primary schools. Besides these so-called junior scholarships, a number of intermediate and senior scholarships are also given. The total amount spent annually by local education authorities on junior and pupil-teacher scholarships is apparently rather more than half a million.

(4) In some cases the provision of junior scholarships of small value has been in excess of the needs of the situation. Thus, of the 12,000 junior scholarships just mentioned, more than a quarter are of the nominal value of £3 or less, and about 2,500 are valued at £2 or less. With this has occasionally gone a tendency to fail in giving sufficiently prolonged or ample help to the handful of pupils who show very marked ability or promise. There is a lack of scholarships by which children of small means might be enabled to go to first-grade secondary schools, and many more intermediate and secondary scholarships are needed. Our information is incomplete, but so far as it goes it tends to show that, excluding pupil-teacher scholarships, the number of intermediate scholarships is only 4 per cent., and of senior scholarships only 3 per cent., of the number of junior scholarships. To secure for large numbers of children of average powers a somewhat longer education than they would otherwise have received is an excellent object, if the education so given is appropriate to the children's needs. But a scholarship system may in run prove socially deleterious if it gives widespread encouragement to merely ability without at the same time takin pains to secure the opportunity of l thorough training for carefully selected in of unusual capacity. And a scholarshi is economically vicious if it imposes a d tionate share of the burden of taxation t tivated families with slender incomes, w the same time providing for such familie tional opportunities of an intellectual appropriate to their needs.

(5) To a limited extent scholarshi bridged over the gulf between lower an secondary education, a gulf which in is social as well as intellectual.

(6) The scholarship system has virtua to span the gap between the public el schools and the great public (boarding) The latter are mainly fed from a specia preparatory school. But many clever bo parents can give them the intellectual tion afforded by such preparatory sch enabled by scholarships to obtain a pub education at a greatly reduced cost. A pears that, in the majority of cases, th could not be sent to public schools of without such pecuniary help.

(7) A lop-sided development has recer given to the scholarship system through ministrative need of securing large nu recruits (chiefly girls) for the elementa teaching profession. Apart from this, th of girls are as yet less liberally recogni those of boys.

(8) The records kept of the later ca scholarship-holders are at present ina Such evidence as is forthcoming points to clusion that an overwhelming majority literary, clerical, and other non-industrial We have records of the after careers of who were junior scholarship holders in shire, Lancashire, Leicestershire, or Some these, between 8 and 9 per cent. went university; 17 per cent. became teacher all in primary schools; 6 per cent. ent Civil Service; rather more than 40 p became clerks or went into business; than 3 per cent. became engineers. M ther information is necessary before any conclusions can be drawn, but these figur suggest that the scholarship system, as a organised, fails to select and reward a portion of boys and girls whose abilities tical and constructive rather than lit purely scientific.

(9) A chief motive in the English sch system has been the benevolent desire every clever boy (and, more recently, clev a chance of individual advancement higher education. But less thought seems been given to the practical question, Wh of secondary and higher education is bes to the special aptitudes of each individual

er? As the dominant tradition in the n of secondary education for boys has l by the requirements of literary callings, the secondary schools which are justly gh esteem are not necessarily in a posi- give the most suitable training to all s for whom a slightly prolonged educa- now desired. The experience gained the working of the present scholarship revealing the lack of adjustment between litional courses of study and the intellec- social needs of modern life. To remedy t new types of secondary-school curri- e needed.

ıe scholarship question should be looked ı national point of view, not only from point of the personal advantage and pre- of the individual scholar. The funda- ırpose of a scholarship system in all its ıd branches is the direction of ability to- ıose callings in which the individual are best qualified, by natural aptitude hysical stamina, to render valuable ser- ıe nation. But hitherto there has been dency to give preferential treatment to iting of the more literary professions.

ıe English scholarship system has worked l in a rough sort of way during a period social change and of resulting educa- velopment. But in itself it is no suffi- stitute for a coherent system of higher , intellectually efficient in all its grades tically adjusted to the needs of a modern ty.

Reforms Needed.

fundamental needs are the reform of ntary schools, both in town and country, rovision of new types of secondary-school m. The conditions under which the vast of English elementary-school teachers esent obliged to work prevent them from sufficiently individualised training, moral llectual, to the children committed to e. The improvement of the elementary ill secure for the children the kind of ining which will best enable the more of them to take advantage of advanced f study. It will also tend to lessen the avage which at present destroys the unity sh education in its elementary stage. effective improvement will be very costly ssarily slow in operation. The necessary art of the reform of the elementary school the increased differentiation of the y schools, and the better adaptation of ricula to modern needs. Nearly all the y day schools in England need more gen- ıancial assistance in order to attain a sure of intellectual efficiency.

ıe English scholarship system in its pre- m gives special advantage to urban dis- lt fails adequately to meet the needs of g children living in the country. These ı prevented by distance or expense from access to a secondary school. In some cases more boarding scholarships are needed. Secondary "tops" should be added to some centrally situated rural elementary schools.

(iii) Much more should be done to provide higher secondary education of first-rate quality in day schools in many smaller towns. There is a danger of higher secondary education becoming (outside a few favoured centres) the privilege of the well-to-do. The new Regulations for Secondary Schools increase this danger. Government grants at a considerably higher rate are needed for higher secondary schools, and in aid of higher secondary "tops" in other carefully selected secondary schools.

(iv) There is need for a more generous provision of intermediate and higher scholarships to enable pupils of special ability to complete the full course at a higher secondary school or to proceed to an institution of university rank or of advanced professional training. For girls especially more higher scholarships are required, tenable at a variety of institutions for academic or practical study.

(v) The fixed value of the scholarships awarded by open competition at the public schools and universities might well be reduced. Ample supplementary allowances should be given to those scholars who need them, after private inquiry into the circumstances of each case.

(vi) Methods of selection which set a premium upon cramming and lead to the neglect of the candidate's health and physique should be sternly discouraged. The best examinations now conducted for junior scholarships are confined, so far as written tests are concerned, to papers in English and arithmetic. The written examination should, where numbers are not too great, be supplemented by a simple oral test. The examiners should also have access to the pupil's school record. Stress should always be laid upon physical fitness. Each local scholarship system might thus become an incentive to the healthy upbringing of children by making a fair standard of physical development a condition of eligibility.

THE SCHOLARSHIP SYSTEM AT A RESIDENTIAL UNIVERSITY.[1]

By H. A. Miers, F.R.S.
Waynflete Professor of Mineralogy, Oxford.

IN the very brief contribution that I have to make to this discussion, I propose to confine myself entirely to the scholarship system at a residential university like Oxford. Here two main objects are to be secured:

(1) The opportunity for the poorer lads of marked ability to get admission to the university.

(2) The encouragement of an intellectual class of student, and the maintenance of a body of scholars who can live together to their mutual benefit.

To these may be added:

(3) Means of endowing industrious lads who are

[1] From a communication to the Educational Science Section of the British Association at its meeting at Leicester, 1907.

unable to win the greater scholarship prizes in open competition, but need endowment if they are to live at an expensive university—the residential system being necessarily more expensive—and

(4) The encouragement of special studies by special scholarships.

With regard to (1) there is very little now to prevent any lad of really marked ability from winning his way to the university by means of scholarships, however humble his origin. So far the present system is a success; provided that a boy can get his foot on the lower rounds of the ladder. But it is also quite certain that at Oxford scholarship money is spent on many young men who could afford to do without it, although the estimates of their number vary greatly. This is indicated by the fact that not a few scholarship candidates do afford to come to the university as commoners.

With regard to (2), it is most important that boys of ability should come together and form an intellectual class in the university, that they should consist of poor and rich alike, and that every college should have a considerable number of them, but that is no reason why they should all receive a uniform endowment of about £80 a year. It has been suggested that all scholarships should be of a nominal value, say, of £40 a year, and should only be supplemented by an additional endowment raising them to £80 or more for those to whom it is really necessary. This would liberate funds which would render it possible to bring to the university and to maintain there many of a highly deserving class whom I have just mentioned, namely, the industrious boys who are not quite up to the open scholarship standard, but who have everything to gain from a university career, and are a great strength to the university and the colleges. Call them exhibitioners or what you will, the point is that they should not be elected merely on open competition, but to some extent on personal recommendation. I would not for one moment relax the principle of absolutely free and open competition for the scholarship boys. The few cases of breakdown are far more than counterbalanced by the good results that follow from healthy competition, but the competition should be between the boys, and not between schools or colleges.

The present scramble for scholars not only between the two older universities, but also between the various colleges at each, leads to no useful result. It sometimes ends in very indifferent competitors being left for those colleges which come late. Add to this the worry and inconvenience caused by sending boys up from school for several successive competitions, and it is clear that there is room for more combination and organisation on the part of the colleges. The group system by which several colleges combine and hold the examinations together is a great improvement on the old independent system, and has been more developed at Cambridge than at Oxford. A college objection to large groups is that, owing to the number of candidates, no opportunity for the examiners to beco sonally acquainted with them; but if the e tion were held only twice a year it m made more prolonged and more thorou it is now, and give ample opportunity examiners to study their candidates on b their respective colleges. From a large system it is only one step to a still larg bination by which scholarship examination be really conducted by the university, sa a year, and the scholars drafted into the colleges. That such an arrangement is practicable is shown by the working of the scholarships. This would, of course, lea college free to reject an offered scholar, an not preclude the possibility of a certain of college scholarships in addition to th ministered by the university.

The endowments that I have me under (3) for boys below the highest sch standard might well be exhibitions admi by the colleges themselves. I should add the scholarship examinations were admi by the university, I would be glad to scholarships at the ladies' colleges under the same system, and largely incre number.

In my opinion one of the great grieva the present time concerning the scholarsh tem is the fact that the examinations a stantly becoming harder, and are tending and more to enforce specialisation at s Anything which will prevent this would be and it would be far easier for the universit whole to keep the standard uniform and than for the individual colleges which are i petition with each other. It is as easy to scholarship boys of real promise from a of competitors by means of a fairly simp wide examination as by the more spec advanced examination which now prevai there is perhaps no reason why the same including classics, mathematics, science, and modern languages, should not be se competitors alike, though it might be ne to preserve a distinction between scholars aminations for modern-side boys and th the classical side. But such things as ex tions in classics or mathematics or hist science alone ought to be unnecessary; s as they exist there is little reason why schol should not be given also for each of the subjects which form part of the ordinary curriculum. I believe that if the uni scholarship examination were more wide a eral, many of the evils of the present com examination would disappear; those ev mainly due to the special cramming demar the present examinations. It would also b possible for every and any school to have a of winning scholarships.

But with regard to (4), if scholarships in subjects should be discouraged for sch they should be encouraged for another cl

:sent almost entirely overlooked by our system, namely, the class of advanced A few of them from favoured countries ›rovided for by the Rhodes scholarships , but it is remarkable that while we are ıg all sorts of advanced courses, di- nd research degrees, we have established .rships to enable the poorer student to n these courses, although there are prob- y who are better qualified by their pre- ining for them than for the ordinary ›urse.

red need, which is also very often over- s that for some provision whereby a ip may be prolonged for post-graduate ›othing is more valuable, both for a ' and for its better students, than the ıce of a considerable body of young men in research or teaching work, or in study, under the direction of the uni- :achers.

any men drift away into professions or ns for which they are not best fitted, ecause they cannot afford to stay on at :rsity at the exact time when a year or lvanced work would supply just the intel- imulus that they require, and would en- e who possess some originality to show abilities.

r matter of supreme importance is the of the scholarship system upon school The present harmful over-training of oys in special directions, and the conse- glect of others, can only be prevented ining on the normal curriculum, and by to allow the examinations to increase in as they do now; in other words, to ıat the scholarship examinations shall set ıal standard of curriculum for the abler ›chool, and not a standard which is only e by a few highly-trained boys of quite ›ility; just as the ordinary entrance exam- to the universities, if they are to be ed, should set the normal standard of m for the ordinary boys.

ıclude, my suggestions amount to this: e that very considerable reforms are in university scholarships; that they ıe by competitive examination of a less :haracter, should be in general of less ıd should be administered by the univer- ıt exhibitions given otherwise than by :ion should be administered by the col- at a certain number of scholarships should led for advanced or post-graduate work; there should be more provision for pro- ordinary scholarships for these purposes.

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THE SCHOLARSHIP SYSTEM AT THE PUBLIC SCHOOLS.[1]

By the Rev. A. A. David, M.A.
Headmaster of Clifton College.

MY remarks are intended to apply mainly to entrance scholarships at the public schools and the universities.

The present system is based upon two principles which should be clearly distinguished at the outset. The first may be identified with the original motive of scholarship donors and founders, namely, the desire to assist those who can prove their fitness for higher education, but would be unable to avail themselves of it without monetary aid.

It is not a little remarkable that, in a country not lavish in the respect it pays to intellectual distinction as such, the position of the "poor scholar" should have developed into one of honour. It is, of course, difficult to disentangle motives, but I should say with some assurance that upon the whole the status of a scholar at school or university is sought as much for the sake of the distinction it confers and the stimulus it supplies to self-respect as for its money value.

We may, therefore, lay down the second principle upon which the system is based as the recognition and encouragement of superior ability and attainment by means of a special status carrying with it a fixed emolument. The difficulty of the existing situation arises from the fact that these two principles cross each other and are applied in confusion. Open competition has naturally resulted in the bestowal of fixed emoluments on those who distinguish themselves in an examination, but may or may not be in need of financial assistance.

I do not know whether any attempt has yet been completed to estimate the extent of what may fairly be described as the malappropriation of charitable funds. Two colleges, one at Oxford and one at Cambridge, have begun an inquiry into the whole question, which, I believe, includes an attempt to gather statistics as to the number of those holding college scholarships, who without them would have been unable to come to the University at all. At present this proportion must be a matter of impression. But I think the opinion of those who have had most to do with schools and universities would be that the system has gone quite wrong enough to call for reform.

In devising such reform, two things should be borne in mind.

In the first place, it is most important that no separation should be made between students who need the monetary assistance of a scholarship and those who deem the distinction worth winning for its own sake, but except in a very few cases cannot bring themselves to resign the emolument.

It would be disastrous to form a class of necessitous students who would be compelled to bear

[1] A paper read before the Educational Science Section of the British Association at its meeting at Leicester, 1907.

a mark of poverty which would in any way debar them from full social intercourse on equal terms with their fellows. This consideration is of particular importance at the universities, where an undergraduate's education depends so vitally upon his chances of taking a full and unrestricted share in college life. There is plenty of scope for the exercise of economy by those who choose to be careful in the regulation of their expenses. In many colleges such economy need in no way cramp their social life. But there is a point at which it becomes unwholesome, and in order that their choice of associates and friends shall not be unduly limited, it is necessary that they shall start on a level with those who have come possibly with a less serious purpose, but nevertheless have their share to give and take in the common life.

I would therefore deprecate any attempt to impose a universal limitation upon scholarship candidates by demanding a declaration of need *before* the examination. Such a step would not only produce an undesirable effect upon the subsequent status of the scholar, but it would also be extremely difficult to exact with any approach to accuracy.

Take the case of a parent who would be required to declare whether or not he could send his boy to a public school or to the university without the assistance of exactly that scholarship for which he wishes to enter him. It might be almost impossible for him to say "yes" or "no" to such a question, and it would be equally impossible for the school or college authorities, before they have established any kind of confidential relations with him, to ask for such information as would enable them to assist him to an answer.

In the second place, it is important that the status of scholar should not be entirely dissociated from the money grant, which, like the scholar's gown, is a sign and symbol of an honourable estate. A very small emolument would be sufficient to seal the value of the distinction attained, but it must be attached thereto without question, and quite irrespective of the candidate's need.

The scheme I would suggest is as follows. I would reduce the money value of all scholarships in the first instance to something almost nominal. £30 is the usual value of a scholarship at Oxford. It is also a common value of entrance scholarships at public schools. I would cut them all down to £20. The balance of scholarship revenue would then be converted into augmentation funds, from which grants would be made privately in addition to need.

The investigation involved in the case of successful candidates would, of course, be difficult and delicate. But it must be remembered that the authorities would be communicating with parents or guardians with whom a personal connection would already have been initiated. It is much easier to ask for confidential evidence about a boy who has already been elected than about one who is "trying his luck"; and it is easier for a parent to give definite answers to those who, by the fact of the election, hav definite interest in his son.

Take a concrete instance. A boy is e an entrance scholarship at school or coll is therefore sure of £20 a year. His fa at once apply, and probably has already for augmentation. He is informed of th sum for which his son may expect to live ably at that particular school or college asked to say how much he needs to a that amount, and to give confidential pa which should enable the authorities to themselves that the boy *could* not come It might be only another £20—it might b Whatever it was, the assignment would gether private.

No doubt mistakes would be made should be observed that few colleges o are without experience in the conduct investigations. At most colleges there hibition funds, at most schools augm funds, which are already administered in the method described above. I believe same method would be found practicable larger scale.

I would make one further point. It i suggested that all scholarships should be to a nominal amount in the first instance, augmented upon the result of subsequen inations much in the same way that m converted into major scholarships at Cam

There is a strong objection to such a It is to my mind most undesirable tha or an undergraduate should be liable to t of financial anxiety while he is at work accepted as a scholar he ought to be ass a reasonable easiness in money matters the whole period of his residence, prov course, that his conduct and industry a factory. It is certainly bad to employ th ulus except in the last resort.

In conclusion let me sum up the advan reform in this direction:

1. The attractive and stimulative infl this distinction would remain undisturbe

2. Competition would be entirely before.

3. A very large annual amount would ferred from those who do not need it who do.

4. Needy scholars would be delivered strain which often seriously affects the pe value of their training.

5. Parents would be confronted with t obligation not to accept money which the require.

[illegible] This is see [illegible] German, and [illegible] such as Horace [illegible] such as [illegible] negligen

SCHOLARSHIP SYSTEM AS TING PREPARATORY SCHOOLS.[1]

By G. Gidley Robinson, M.A.

) class of schools is the scholarship tem of greater interest and importance n to preparatory schools, both in its und in its educational aspects. It will ient to group what I have to say about hese two headings.

NCIAL.—If a boy is to get a public-school scholarship, it is practically necessary ould have been trained for the examina- preparatory school. Now and again a hematical promise from a country gram- ol secures election, or a clever boy, home by a father with learning and l the teaching gift; but these cases are rely rare; they do not affect the general would, however, be a fallacy to infer use a boy is educated at a preparatory refore his parents must be wealthy and pense with the help of a public-school) to complete his education. Parents means often make self-sacrificing efforts eir sons to a preparatory school, not se they regard it as an indispensable cess in winning the scholarship which them through the next stage, but also ey believe that a boarding-school is training-ground for character. More- ratory-school masters, who realise how can do to help professional men of neans by reduction of school fees, often mpathy take this practical shape. It se, true that a man whose school is ay be glad to accept boys at reduced ep up his numbers; but more is done

Not infrequently, I believe, school- o have no anxiety as to numbers help cases which come under their notice, g nominal fees. A considerable num- ys, therefore, who pass through pre- hools, are in more or less serious need l help, and for them public-school en- larships are an inestimable boon.

other hand, it cannot be denied that its who could well afford to give their lic-school education without extraneous en to get scholarships. There is some- said for them. The prospect of win- olarship helps to keep a schoolboy up . How far it is good to appeal to the stinct—the love of being first—which ained in the British boy, is open to ut under the stimulus of competition he orks harder than he otherwise would. ll, he starts well at his public school: nto a form well above the ruck, and s keep their eye upon him as a boy o the school credit later. These are dvantages in a crowded world of per- or six hundred boys, with thirty or n a form. If elected on the foundation at Eton or Winchester, he will live for five impressionable years among an unusually clever lot of boys, who will sharpen his wits and give him an interest in intellectual things. But, when all is said, we cannot get away from the fact that the scholarships in many cases go to the sons of prosperous people. Now and again, it is true, the money value of a scholarship is waived by a wealthy but conscientious father, or a mother will prefer one of the boarding-houses at Winchester or Eton, under a vague impression that boys are more comfortable there than in college. But, broadly speaking, I believe it to be true that scholarships are regarded by the public as "so many valuable prizes, carrying no obligation, which any boy may win who has brains enough."[1] That is the root of the matter. Scholarships have come to be regarded as *prizes*, not as endowments of an eleemosynary kind. So long as they are regarded as prizes, they will continue to fall to many who may want but certainly do not need them.

What is the remedy? The ideal would be that for the sons of rich people the scholarship should be honorary only, and, if a place in college is desired, that the money value at any rate should be refunded to the headmaster. But "rich" is a relative term, and the most practicable course seems to be that recommended by the Royal Commission on Secondary Education[2] in 1895, that "these scholarships should continue to be legally open to all classes, but should be restricted to a comparatively low value, the governing body of the school being entrusted with a discretion to augment their value in the case of any individual scholar, if they should consider that such augmentation is required by the pecuniary circumstances of the boy's parents." Something of this kind is already done at the R.N. College, Osborne, where a large reduction is made in the case of officers of the Navy and Army, provided they can show that the fees paid are a serious burden. Such a course, being a matter for private negotiation, would leave no stigma of poverty on the scholar. But no individual school, as the Bryce Commission recognised, could carry out such a reform by itself; hence the recommendation that it should be required by a general statutory enactment. If this were done, I believe the moral effect would be very great. It would bring home to the minds of many, who now never give the subject serious thought, that scholarships were never meant to be prizes.

II. Educational.—In offering entrance scholarships, the aim of the great public schools (and it is with a group of these that the preparatory schools are mainly concerned) is confessedly to attract boys who will do them credit later by winning honours at the universities and elsewhere; and on the ground that the universities do not recognise all-round equipment, "specialisation" may well be encouraged—to quote Dr. James, of Rugby—

before the Educational Science Section of the British meeting at Leicester, 1907.

[1] Dr. Rouse in *National Review* for October, 1906, *s. v.* "Open Scholarships."

[2] Report, vol. i., p. 303.

"even at the very earliest age."[1] The result is seen in the difficulty of the papers set in Latin and Greek, the excessive number of hours which preparatory schools are obliged to devote to classics, and the protest of a large majority of these schools "that no settlement of the curriculum will be satisfactory to their association, which imposes on young boys the rudiments of three languages besides their own."

There is, however, one important function discharged by the scholarship system which must not be overlooked. It supplies the readiest public test—I do not say the truest one—of the work and teaching of the preparatory schools; it sets a standard. In teaching, as has been well said, it is difficult to draw the line between skilled and unskilled labour; and anybody with sufficient capital, we must remember, might start a preparatory school to-morrow. It is inevitable, therefore, that the standard of work and effort should vary considerably between one school and another. Now scholarships, especially the more valuable ones, cannot be got without teaching ability on the part of the masters and steady hard work on the part of the candidates on their way up through the school. Moreover, such teaching is thorough, if on narrow lines, and the abler boys show results that are often brilliant in literary taste and expression.

On the other hand, the scholarship standard fixes the curriculum of the preparatory school from top to bottom, for the dull as well as for the clever; and the effects of the system on boys of moderate or less than moderate ability are wasteful and unsatisfactory. These boys are overburdened with languages—Latin and French at nine years of age, Greek or German at eleven—without gaining much education from them of a humane or literary kind. The plain fact is that the public schools have not sufficiently considered the curriculum question *from the point of view of the boy*. They want specialised material, and suggestions for reform are too often treated as attacks upon the classics and their rightful place in education. Whereas what preparatory schools really desire is a recognition of the fact that premature specialisation in any subject is bad; that children need opportunities of development on different lines; and that what is best in the preparatory-school stage must also be the best preparation for the public school. For the secret of good teaching is to give the pupil a sense of power, and therefore of life and growth and joy in his work. Some children will get this sense through the study of language, others through nature-study or handicraft. But every child ought to have the chance of showing in what direction his aptitudes lie, of discovering the gift that is in him. Even the future "scholar" is the better for the alertness of mind which comes of many-sided interest; no one ought to be considered cultured who is merely bookish, whose eyes are closed to the problems and appeals of nature, or whose fingers are all thumbs. And for the boy who is stupid at his books to find th more than hold his own in the carpen or the drawing-school is to gain self-re a fresh incentive to effort, and healthy en for leisure hours. Character and brains the better for the discovery. And there thing to be considered. Scholarships, it are intended to be capacity-catching cor True; but genius is in any case rare, an practical work in the world is often don of quite ordinary capacity, provided that sess the qualities of patience and coura not in these moral qualities that Englis generally found lacking. Where they c is in the things of the mind; too man are intellectually failures. And for this scholarship system is partly responsibl its influence upon the curriculum has b tunate. We should trust the clever than we do to look after himself; the need is to remodel the curriculum in t of the rank and file, the boys of ordin

The first step—which could be tak any violent changes of methods and s would be simply to postpone Greek (c and Latin verse-writing to the public-sc Five or six hours a week, at the would then be available for other subje stress could be laid upon the teaching literature and composition, as the m from which, for the ordinary boy, li humane education should be provided, jects like nature-study and handicraft v a better chance. Whether Latin wou being postponed to the age of eleven I need not now inquire. But the ques us to another difficulty—that of the t his qualifications. The masters in p schools are nearly all public-school m duct of the traditional methods in Their teaching of classics has a long ised experience behind it, and in the abler boys produces remarkable profici if other subjects are effectively to tak of classics as a means of training th the teaching ought to be of the sa and this cannot as yet be generally it. We have to remember that the te fession is becoming less and less a men who have taken honours at the u and that, outside the classics, much still in the experimental stage. Alreac reform of mathematics and the dema methods in the teaching of French ar complaints are heard of the "tangle preparatory schools find themselves, c culty of getting qualified assistant-ma are beginning to realise that in dealing lish literature and composition, the Latin and Greek is not the best mode better methods will have to be ev too, with nature-study: it is not enou vide adequate time for it in the curric right kind of teacher will have to the man who really has practical kr

[1] Report of the Headmasters' Conference, 1897, p. 31.

, and can deal with it in the simple
hat boys can understand, not the mere
d and bound to the text-book out of
ives his lesson. Reformers, therefore,
sten slowly." The provision of the
of teacher will take time, and until he
e in sufficient numbers we must be
r comparatively poor results. But it
great step to have gained practical
of the principle that in the prepara-
intellectual interests of many kinds
al, for the scholar as well as for the
y.

LA OF SECONDARY SCHOOLS.[1]

mmittee submit for consideration the
wing conclusions which they have
hed as the result of their debates:

is need for secondary schools of dif-
s, with different curricula or combina-
rricula: because

oys are not suited to the same course

requirements of the various callings
the boys will subsequently enter differ
y.

needs of the schools differ in a consider-
e, according to the economic condi-
e districts in which they are situated.

speaking, however, the secondary
into two different types—viz., those in
majority of boys remain till eighteen or
and then continue their education at
niversity rank; and those in which the
ave at fifteen or sixteen and proceed
. There is, however, no sharp line of
n between the two.

committee consider that one modern
guage should in all cases be begun at
ge; but are of opinion that it would
educational experiment to postpone the
teaching of Latin as an ordinary school
twelve years of age, and that such a
prove sufficiently successful to warrant
n.

ther hand, they are of opinion that such
systematic teaching by no means pre-
incidental teaching before the age of
such means as will naturally occur to
alified teacher of young boys.

mmittee also desire to record their
at the continued teaching of either of
ad languages to boys who, after serious
shown little or no progress in, or
r, such linguistic study has little or no
value; and that, though the mental
fforded by such study is of great value
e of many boys, yet in the case of
h study not only produces no good
results, but does positive harm to their mental and moral progress by reason of their incapacity to grapple with its difficulties.

The committee go further, and express their doubt whether the authorities in some secondary schools have sufficiently recognised this fact, or have provided sufficient alternatives to such linguistic study.

3. The committee deprecate any form of early specialisation in the education of children, and therefore regard with grave concern the fact that the entrance examinations at the great English public schools give undue prominence to the study of Latin (and Greek) in the course of education at the preparatary schools, the result being that too little time is available for (*a*) the teaching of the mother tongue, (*b*) manual training, (*c*) science and mathematics.

4. The committee would deprecate anything like State-imposed rigidity in the organisation and studies of secondary schools.

But the committee are led to the conclusion that up to twelve years of age there might be a broad general course of education for all. It would in all cases include careful preliminary training in the use of the mother tongue, so that it could be used in speaking and writing correctly on ordinary occasions, and would further comprise the following divisions:

(1) Literary; (2) mathematical; (3) scientific; (4) manual training.

They consider that a school week of twenty-six hours might be divided as follows:

Literary work, thirteen hours; mathematical and scientific work, nine hours; drawing and manual training, four hours; while for those who after twelve years of age commence the study of Latin, the division of time should be: literary work, sixteen hours; other subjects, ten hours.

5. The committee are of opinion that the curriculum in secondary schools suffers gravely from the number of subjects which have been crowded into it, and they regard this as the most serious factor in secondary education at the present time. They are of opinion that this "overcrowding" is due to two causes:

(1) The disproportionate amount of time bestowed in many schools on the two ancient languages, which leaves only a small residuum for each of the other subjects now increasingly regarded as essential items of education, the result being that the pupil obtains only a smattering of the knowledge of such subjects.

(2) The ill-founded belief that the curriculum should be an abstract of all modern knowledge.

6. The committee desire to see a great simplification in the arrangement of examinations for secondary schools, and they strongly recommend that examination and teaching should go hand in hand, the examiners co-operating with the teachers and acting in conjunction with them in order to further the interests of real education.

The committee would urge upon the universities and professions to accept as qualifying for entrance the leaving certificates granted by each

[1] he Committee of the British Association, consisting of Sir hairman), Mr. C. M. Stuart (secretary), Mr. T. E. Page, aeler, H. E. Armstrong, and J. Perry, Sir Philip Magnus, ns, Dr. H. B. Gray, Prof. H. A. Miers, Mr. A. E. Shipley, , and Sir William Huggins, appointed to consider and to curricula of secondary schools; in the first instance, the s' schools.

it desirable to attempt to make zoolo-
erybody. Hence the "type-method,"
derlying idea of evolution, is not suit-
rposes of general education. What we
ather that everyone shall gain an intelli-
st and sympathy with the lower ani-
shall understand to some extent how
and move and have their being, their
: to man in his industries and otherwise,
man is an animal, something of the
nd healthy working of the human body.
ler and cleverer pupils pure nature-study
ecome insufficient. As the mind ma-
ust have more solid matter to digest.
husiasm for a new method of teaching
rather apt to supply an infantile diet
ıat are not thereby strengthened. The
ıal that was evolved in Nature's work-
ably did not continue to suckle her
:r they acquired teeth fit for chewing

We may, therefore, in our secondary
ɔceed to ask more about the "how"
why" of animal phenomena; in other
egin physiology. But this of necessity
t least some training in physics and
and I am strongly in favour of inter-
year devoted to the elements of these
:fore proceeding further with zoology
n the other hand, I would not separate
ıd structure into water-tight compart-
as far as possible take them together.
ırge portion of the physiology should be
en when we are dealing with inverte-
als. A comparatively slight acquaint-
ɔhysical and chemical methods will en-
to find out many of the properties of
ɛ, eggs, butter, and other foodstuffs;
eadily accessible for experiments on
rocesses, and pepsin and hydrochloric
e purchased without much difficulty.
ıe essential features in respiration can
ned with the simplest of apparatus;
these are taken in conjunction with
ɜ on the combustion of foodstuffs part
: of the metabolic processes becomes

Pupils are always deeply interested
ɔhysiology; indeed, I know no subject
ɜ the attention of classes more firmly;
tally it may be remarked that the op-
ırises of imparting many a valuable
l aspects of hygiene. A very real dif-
e question of laboratory work and dis-
ı the short space of time usually
cience, dissection is almost impossible,
e be laboratory accommodation for the
Nevertheless a good deal of this can
ith some animals (*e.g.*, insects and
), if one rests content with externals
pplements deficiencies by museum pre-
nicroscope slides thrown by the elec-
on the screen, and so on.

ıld be valuable to obtain an expression
rom teachers present on the questions
ing the theory of evolution and prin-
assification, and, if these are to be introduced, whether it is best to begin with the unicellular animal and work upwards, or to adopt the reverse course. My own feeling is that this part, the most interesting to the trained zoologist, is beyond the grasp of any but one's best class. The number of animals with which it is possible to deal is but few, and though it is clear enough that there is increasing complexity of structure and increasing differentiation of function among the organs, yet the premisses are not sufficient to warrant any conclusion that the higher has been evolved from the lower, nor to bring out the doctrines of homology. There are two natural opportunities of introducing the evolutionary aspect in these general courses. One occurs in studying the development of such animals as the frog and freshwater snail, where it is possible to see the unicellular ovum give rise to the multicellular adult, and the fish tadpole to the amphibian frog. The other can be combined with the principles of classification and homologies, as exemplified in the study of a series of closely allied animals, such as can easily be obtained among the crustaceans or insects, or, if more convenient, in the skeletons of vertebrate animals. The typical animals usually employed in university preliminary courses stand too far apart and require more supplemental lecturing than is advisable in a school course, which has not as its object a knowledge of the various styles of animal architecture.

Lastly, a word of defence against certain opponents is necessary. It is by some maintained that anatomy and physiology are "nasty," and even indecent, and not fit subjects of education *virginibus puerisque*. To come straight to the main point, it is the sexual processes of reproduction to which objection is made. It is even urged that zoology may be taught if this part of the subject be left out. There is no more mischievous suggestion. Are we to do all we can to encourage the study of animal life, and then deny all information and guidance on phenomena which are bound to come under observation, as though these were something unholy and unclean? Curiosity on these matters is natural and inevitable, and it is far better, it is best, that this legitimate curiosity should be satisfied and instructed in a clean, wholesome, and scientific way than by any other means. It is only so that a reverent respect for the whole body, whether of brute or man, can be gained. *Puris pura omnia.*

Rational Test Cards in Arithmetic. Head Teachers' Quartette Series. Third, Fourth, Fifth, Sixth, and Seventh Years. (Macmillan.) 1*s.* net per packet.—Each packet contains sixty-four cards, with two copies of answers, and the questions are arranged in a way that will be not only convenient for the teacher, but fair to the pupil. Each card has a test for each of three terms or for three scholars: the cards are arranged in "fours," and can be distributed to the pupils in more ways than one that satisfy reasonable examination conditions. Their use should considerably simplify the laborious but necessary work of examinations. The questions appear to be generally straightforward.

ON THE PRACTICAL DIFFICULTIES IN OBTAINING MEASUREMENTS OF GROWTH IN SCHOOLBOYS.[1]

By E. MEYRICK, B.A., F.R.S.
Marlborough College.

IT would seem to be a sufficiently simple task to obtain regular statistics of growth in schoolboys. The subjects are under control, and are available in considerable numbers at regular times and places; and they are, moreover, themselves usually interested in the process, and therefore not unwilling. At Marlborough College we have carried out measurements of the whole school (over 600 boys) on a uniform system annually for more than twenty years; but I am told that similar accumulations of results are rare, and the inference would seem to be that in practice the operation is not so simple of execution as it seems.

To begin with, supposing the authorities of a great school decide to take regular measurements of their boys, who is to do it? I need scarcely say that no salary, emolument, or honour will attach to the office; it may sometimes be added to the duties of the gymnastic instructor, but more usually some members of the teaching staff who are sufficiently interested must undertake it in their spare time. The latter is, in fact, the only practical course, as the gymnastic instructor will not be much interested in the results, and a single operator cannot deal efficiently with a large school, since the process would be much too long and tedious. As a rule, one operator is required for each class of measurement, and with this arrangement the average rate of measurement will in practice be one boy per minute. Of course, the tabulation and checking of the results by comparison with the previous year must also be subsequently dealt with, and provision must be made for their publication.

The next question will be to decide what measurements are to be taken; and when these are considered in detail and attempted in practice, all sorts of minor difficulties appear. It is exceedingly troublesome to get good measurements of anything which is capable of voluntary expansion and contraction, such as the girth of the chest. If the greatest expansion and greatest contraction are measured it will be found by experiment that a boy produces different results at every trial; whilst if it is attempted to take the normal or intermediate expansion, the result is still more untrustworthy. Probably also the chest measurement really fluctuates from time to time, and the comparison of annual results shows many inconsistencies. Measurements of the girth of arms and legs are open to the same objections, and in addition are troublesome from the comparative smallness of the differences to be apprehended, so that a numerically small error is relatively more serious. The head is not expansible, but the same difficulty is found of the small amount of growth to be measured, complicated in this instance by possible uncertainty a amount of hair present. Tests of strength or of lung capacity are found trustworthy without considerable practi part of each boy, and it is impracticable to for this; some boys produce their best these very much more readily than others and weight are easy to measure, and variable at will, but the latter at any ra temporarily affected by indisposition, an liable to inaccuracies such as will be later. The contemplation of these un will probably make the operator dissati his work, and doubtful of the advantag on with it.

Errors still more considerable are, introduced in other ways. Measureme be taken annually, but it is impossible cise in this matter; if any batch of me extends over a fortnight (which is abou time with us), the error from this amount to 4 per cent. if the yearly being considered. A boy cannot al when wanted; he may be ill, or detain duties, or forgetful; and the dates and of the school will vary from year to y not possible to override other school ar and functions; and it would not be j use too great stringency, and provok larity for the service among masters an rendering it too onerous or causing i with other engagements. All we can make the yearly interval approach as possible to a real year; but it has to a year in any case.

Further, the measurements must be a a certain age; in practice this cannot more accurately than in years and m there is, therefore, in any given instar sible error of almost a month's growt error in the statement of the age is als The personal inaccuracy of the operato taken into account; simple as each o when conducted leisurely and in a singl mental confusion is easily produced roomful of boys is being dealt with as possible. In ascertaining the w example, under our system, the opera notice that the boy has his boots (whi cards for height), and to calculate the w a combination of perhaps three differen and as the combining weights are changing, it is easy to become confu whether one is using the 100 lb. or t 50 lb. or 50 lb. In checking the res that unsuspected errors of this kind a common. We weigh the boys in clothing; if they had to be specially undressed, much additional time and tro be required; but it introduces an addi ment of uncertainty, since it is a ver factor, according to weather and indivi The rate of growth in boys is often ir spasmodic, and hence the interval between two measurements is too lo

[1] A paper read before the Educational Science Section of the British Association at its meeting at Leicester, 1907.

mprehension of the process; but it would ess to recommend such an increase of nd difficulty as would be involved by quent measurements. Finally, the indi- riation in different boys is very great; of exactly the same age (*e.g.*, sixteen ay differ by more than a foot in height, than 60 lb. in weight.

mpression which a scientifically minded derives from these elements of perturba- hat the whole process is so full of inac- hat it is hardly worth while going on t the expense of considerable personal ence; and hence he may be tempted to it. It is true that isolated instances of ent so obtained are not of a high stan- value; but when the figures are con- n bulk, the objection disappears. In very case the error is as likely to be in tion as in the other, and when a great of instances is taken, the errors tend to each other, and a just average result is

What is required, therefore, is not that o are working should stop, but that a mber of additional workers should be

I thought it might be useful and ing if I could give some figures to t our measurements, imperfect as they ead to some consistent and interesting I proposed to myself, therefore, to com- heights and weights of boys at Marl- College now with those of their pre- twenty years ago. I took two groups viz., those from fourteen years to four- s and six months, and those from fifteen l ten months to sixteen years and three and found the averages for each month n the two periods 1885–7 and 1905–6 ly, and smoothed the resulting curves. arison of the results obtained I found boys in the lower group of ages showed cond period an increase of 1¼ in.—1½ in. , and 4½—5½ lb. in weight (the greater for the higher ages); and those in the oup of ages showed for the second period se of about ¾ in. in height and 8 lb. in s compared with the first period. I am that these figures are trustworthy, so show that a very marked increase in weight has taken place during these ears. In connection with this I may hat I am informed by Mr. V. Head, of ugh, who supplies hats to six schools, in- Marlborough College, that unquestionably been a very marked increase in the eads of the boys of those schools (in all ing his forty years' experience; so that merly he was rarely, if ever, asked for a 21½ inches, he is now frequently called supply hats of 22 and 22¼ inches, and etimes 23 inches. Without attempting t for these facts, I think I may say that ort one another, and give good reason ng that labour spent in the collection of istics is not thrown away.

TYPES OF PHYSICAL DEVELOPMENT IN SCHOOLS.[1]

By CECIL HAWKINS, M.A.
Haileybury College.

WHAT the schoolmaster requires from a system of physical measurements is an easy means of discovering whether individuals or groups of individuals are thriving or the reverse.

A good rough estimate of the manner in which a boy is thriving can be formed by comparison of periodic measurements of his height and weight. In order that the lesson to be learnt from these observations may be sufficiently obvious a system of grades is required. Comparison with the rate of growth of the mean boy is unsatisfactory; a high-grade boy of fourteen will normally grow twice as fast as a low-grade boy, while at eighteen the low-grade boy should be growing twice as fast as the high-grade boy.

I have used for some years a set of tables by means of which the height and weight of all boys observed may be referred to one or other of twenty grades—all equally probable—of which grade 1 is the highest. The record of a boy's growth can conveniently be kept upon a form divided by parallel lines into twenty spaces to represent the twenty grades, separate graphs being drawn for height and weight. These graphs will be fairly level in rather more than 50 per cent. of the cases observed. In the majority of the remaining cases periods of steady rise or fall will be noted, in which the two graphs, as a rule, remain fairly parallel. In some cases the graphs are very irregular, constant fluctuations being apparent. In such cases the fluctuations in the two graphs are generally found to correspond.

Consecutive observations will give the same grade in about 50 per cent. of the cases observed. The graph normally rises in 25 per cent. and falls in 25 per cent., speaking roughly. Any disturbing cause will alter these proportions in a group affected by it; *e.g.*, in a school in which observations are recorded in March, June, and October or November I found that in the various intervals the percentages were:

In height	Up	Level	Down
March to June	25·4	53·0	21·6
June to October	33·1	45·7	21·2
November to March ...	14·2	47·3	38·6
In weight	**Up**	**Level**	**Down**
March to June	33·5	41·2	25·4
June to October	35·9	41·6	22·7
November to March ...	24·4	37·6	38·0

Variations in chest-girth are far more marked than those in height and weight, the chief disturbing factor being systematic physical training. Thus of 225 Haileybury boys—taken as they came—who were measured on entrance, and again after three terms of compulsory physical training, one boy improved 15 grades in chest-girth, three boys 13 grades, four boys 12 grades; 12 per cent. had gone down from 1 to 5 grades, 14 per cent.

[1] An abstract of a paper read before the Educational Science Section of the British Association at its meet ng at Leicester, 1907.

were level, 50 per cent. had improved from 1 to 5 grades, 15·5 per cent. from 5 to 10 grades, and 8·5 per cent. had improved more than 10 grades.

Typical schemes of development may be arrived at by working out the average grades of the type required. *E.g., typical athletes* grade at 18, 7 in height, 5 in chest-girth, 3 in weight, and are early developed; *typical gymnasts* grade 13 in height, 7 in weight and chest-girth, the grade of height being very uniform throughout their scheme of growth; *typical scholars* grade 9 in height and chest-girth, 7 in weight. The importance of weight as a sign or factor of vigour is very marked.

For general use I would urge that a system of percentile grades be adopted, which should include all classes of the population. In order to construct such a system we require a large number of accurate observations, which must include children of all ages, subject to every variety of condition as regards nurture and environment.

THE INTERNATIONAL CONGRESS ON SCHOOL HYGIENE.

WHATEVER may prove to be the net and ultimate result of its labours, the Second Congress on School Hygiene may be said to have justified the inspiration to which it and its predecessor at Nuremberg owed their birth. The ground covered by their discussions was, indeed, outlined centuries ago; and there are but few of the subjects reviewed which may not be found debated, and that often with a detail curiously modern and precise, in the writings of Milton and of Locke, of Rousseau, Goethe and Basedow, to make no mention of names more recent. Nor is this surprising. The problem of child-training has been recognised as a problem demanding effective solution since the dawn of civilisation. Time has not yet changed the human material with which it deals so as greatly to alter the intrinsic value of this factor in any educational scheme. "'A sound mind in a sound body' is," writes John Locke, "a short but full description of a happy state in this world. He that has but these two has little more to wish for, and he that wants either of them will be but little the better for anything else." And elsewhere in his "Thoughts Concerning Education," he puts learning last, and thinks it the least part.

On the other hand, the conditions of life, the environment of the child, have changed materially and are still in process of evolution. As the result of some of the elements inherent in modern "civilisation," new perils have arisen and others have acquired greater intensity; while, contemporaneously, each generation sees the addition of a larger number of the less capable in both mind and body added to the juvenile population for whom education is to be provided. So that, while the broad principles involved in training and maintaining "a sound mind in a sound body" remain practically immutable since human nature is *human nature* still there is ample room and growing need for investigation, colla comparison, discussion, and progress in every detail of the methods applicable desirable end. In such circumstances, t of international conferences of experts is

Further, the congress just ended seem conscious of an influence urging it to an somewhat beyond the terms of its in reference. More than once, following struck in the president's opening addre seemed more evidence than heretofore assumption, clearer and more generally re as obligatory, that the child of to-day is objective limit of its work. This gene children as the parents of the next—fathers of generations yet to be; not n welfare of the boys and girls of to-day success or the failure—perhaps the su the extinction—of a nation. Of rec there would almost seem to have been dim awakening amongst the civilised the world to a realisation of the fact th tion does not necessarily ensure contin ence to the nations that profess it; that may but does contain within itself the of self-destruction; and that, in more direction, there are not wanting signs are already in operation. From this po there is no extravagance in asserting gospel of health, which assumes its le and its most effective form in its appl the home and to the child, is at once t and the most practical form of patriot is surely the most necessary.

Health is of no age or sex or period. phet of hygiene in the school, however—needs must refer to the home, since his relation to the school are relatively fut be not preceded and seconded by simi in relation to the family—has no dire with the child prior to what is termed th age." At what year is this territoria home life to be drawn? The local authority is permitted to consider the parents in this matter to some extent. is a practically unanimous consensus that the aggregation of children under s seven) years of age in schools is ec wasteful, educationally disastrous, and real danger to their own health, besides the spread of infectious disease amongs munity. Below the age specified, the l ing is most naturally and effectively a home and in healthy play with other failing this, in *crèches* in charge of kindly, and sympathetic nurse, rather th of a teacher—"the best-informed teacl necessarily the best baby-minder." In pens, pencils, paper, pins and needles s be handled in school by children under earliest, at peril of damage to delicate veloped eyesight. Most schools depend tural ventilation"—by doors and winc Under such conditions, size of room compensate for deficient exchange of air;

allowance of floor-space to each child, the
ɔm has a definite advantage over the large
It is a fact that the atmosphere of the
elementary-school room is far fouler than
the worst slum dwelling room.
ɔn the threshold of school life, too, that
confronted with the subject of medical
ɔn. No one who has given five minutes'
nt consideration to the subject would pre-
ıt medical inspection is a be-all and end-
plete in itself. Standing alone it has and
ɜ *no* value to the child or to the race. As
item essential to formulating and adminis-
ı system of social reformation, it is an
necessity. Briefly, its object will be to
ınd classify the educational material of the
to separate those who are fitted to benefit
rdinary educational curriculum from those
ıst be treated more or less exceptionally
they are themselves abnormal; to indi-
each of these two main classes, those indi-
who fall short of recognised standards,
measures called for in the several cases;
rtain from time to time the extent to
uch measures have attained their object,
directions in which they may need modi-
and, incidentally, in collaboration with
gencies, to point out the sources of ill-
ınd infirmity in the child, and to suggest
.ns by which the incidence of these may
ɜnted in the future.
ugh the Board of Education was not for-
epresented at the congress, it is quite
ɔod that the result of the latter's delibera-
.s been awaited in order that the Govern-
ay the better formulate the terms of those
ns which it shortly intends to introduce on
ɟject. So that we may confidently expect
ore long a grave reproach to our educa-
ystem, and one of the most serious obsta-
ts efficiency, will be removed; and that, as
Crichton Browne observed, "this dilatory
" will at length follow the example of
Germany, Belgium, Austria, Norway,
land, Russia, Servia, the United States,
Egypt, the Argentine Republic, and Chili
ɔlishing the regular inspection of schools
ool children, either as a State institution
r local organisation. Medical inspection
evitably lead to the devising of measures
prevention and correction of the racial
vhich it glaringly reveals; for, to quote
e most sordid argument, it is clearly
to feed a child sufficiently, to attend pro-
ı its teeth, to provide it with proper spec-
ɔ safeguard its hearing, and to give it the
training (if called for) by which alone it
efit, than to waste time and money vainly
ıg to give it the education which its phy-
mental disabilities render it incapable of
ıting. In this connection every teacher
ve no small and no mean share. It will
or her part to separate the obviously ab-
from the normal children at the time of
ıtrance into school life, and to distinguish,
from time to time, those who, in a lesser degree, fall short of the usual standard, in order that their defects—of eyesight or of hearing, for example—may be fully investigated; and to note with intelligence and sympathy such individual variations in health and ability as may demand some relaxation of educational pressure, or may suggest incipient disease.

To this end some training of the school teacher in elementary hygiene is requisite—not that parody of instruction such as is furnished by a departmental "set of printed rules," but—within limits—a knowledge of the subject itself. How valuable this can prove, and how easily and pleasantly acquired, are sufficiently proved by the admirable work already accomplished by the training colleges in Scotland. Every real teacher is, whether he knows it or not, something of a biologist, and needs to be so. As Mr. Woods, of Columbia University, puts it, "The most important duty of the teacher in the realm of hygiene is . . . to see to it, from day to day, that the young person is in a normal healthy state. . . . It cannot be taken for granted that the child is in the best organic state possible. It is the duty of education to know whether the pupil is in his or her best possible condition or not; and if not, the reason for this should be determined." The teacher stands upon the watch-tower, and should be intelligently keen to give the signal when things go wrong, or better, when trouble of any kind is threatened. For the due exercise of this function, the teacher must be adequately prepared before being allowed to undertake the professional task of education. In the acquisition of this necessary knoweldge, and still more in its daily application, he will find the source of a new pleasure, and in his daily work will meet with constantly occurring opportunities of instilling into the mind and life of the pupil the elements of those great health truths which the child will thus absorb almost unconsciously.

But the instruction of the pupil in the laws of health must not stop at this point. To those of older growth, a knowledge of elementary hygiene should be imparted as a definite item in the educational curriculum, and this in all classes of schools, in secondary and public schools no less than in the elementary and primary. It is quite a mistake to imagine that the study of elementary physiology and hygiene is not suitable for the young—that it tends to self-consciousness and morbidness. It is not enough to let the children have healthful surroundings, to develop in them an appetite for fresh air, personal cleanliness and active exercise, and to rely on the unwritten law of the school, the influence of the *genius loci*, to mould them to regular habits. All these things are good—they are more, they have an inestimable value. But "why not add instruction to the habituation; why not enlighten the practice by the theory?" A good habit is all the stronger if it be based upon or supported by knowledge. Even in the best schools there exist dangers arising from ignorance, dangers which are slow of

recognition, and not likely to be guarded against or removed by reliance upon rule-of-thumb methods.

There is a hygiene of the mind as well as a hygiene of the body; they are not distinct or disconnected; they cannot really be divorced. Under the guidance of the wise and well-trained teacher they can be made most usefully to reinforce each other. The occasional quiet talks between headmasters or headmistresses and some of their senior pupils on matters of importance do not carry less weight if both parties to the discussion are reasonably equipped with sufficient knowledge of what is essential to the possession of a sound body as the habitat of a sound mind. Ignorance is not always, or for all ages, the real safeguard of innocence. Knowledge is not necessarily synonymous with impurity: it is, indeed, the foundation of self-respect. To have learned to respect one's body is to have learned the basis of self-control. By such knowledge, wisely inspired and directed, can best be dissipated that "malefic miasm of ignorance" which dangerously clouds the delicate borderland between hygiene and morality, hygiene and character, hygiene and religion. By it can best be fostered that quality in which the results of modern education are most conspicuously lacking, the sense of reverence.

Here, again, is presented another aspect of the value of exercise—always in the open air, if at all possible. The influence of "folk-dancing" on young children has been proved in America, as well as in some European countries, in promoting the physical development as well as the discipline and the happiness of the pupils. For the teacher as well as for the pupil, appropriate physical exercises, intelligently supervised, are, in almost all cases, a necessary complement of the ordinary games of youth and childhood. But there is always need for the caution, lest physical and mental work should jointly overtax the bodily powers, and always the need for securing to each individual a full allowance of sleep. For boys especially, military drill has great advantages, and training in the use of the rifle gives to it an added zest, without at all tending to the development of an aggressive spirit on the part of the individual, but rather the reverse. It seems clear, if judgment is to be influenced by the observation of those whose actual experience of results best qualifies them to speak, that in the establishment of cadet corps and shooting clubs, and in the cultivation of a fondness for participation in concerted outdoor games, such as cricket, football, and hockey, lie the best prospect of checking the development of "hooliganism," which is, after all, only an expression of misdirected energy on the part of those who have acquired no taste for the active employment of their leisure in healthy pursuits; and also of correcting that abnormal folly which packs the youth of whole cities in idle thousands to watch and bet upon a score or so of professionals engaged in a game which the spectators do not care to play themselves.

The need for more health-knowledge, physical training, and a more sanitary ment for the teacher is borne in upo statistics which show that in America events, the death rate of female school from tuberculosis is practically as high of printers. The mortality for the male is about one half of these figures—pa doubt, because they get more open-air and partly because the chest movements restrained by corsets. Deficient air-space fect ventilation, the strain of their work, little sleep are potent contributory causes. tuberculosis amongst children actually at comparatively rare; and since children expectorate, they seldom act as carriers tion. In its latent forms, however glands, diseased tonsils, &c.), the malad more common, and an early recognition dence is important, in order that the be subject to effective curative treatme the school. Meanwhile, important me wards eradicating this disease, which claims some 60,000 victims annuall country, consist in the prevention crowding in schools, in their effic tilation and better lighting, and practice of frequent and regular w ing of the walls and floors of th room itself, the use of damp duster the chalk-dust in connection with blackb improved sanitation of the pupils' home

Education has for long been too unsy a one-sided conception. It has been m ary and humanistic. "Its tendency towards the study of books and words r of things; and its basis has been disci not health." Not too soon are we to the sinister significance of facts w us of perils demanding a readjustme methods, and which call for a due rec the rights which the body claims in the ship of man's humanity.

EDUCATION AT THE BRITISH TION.

By G. F. DANIELL, B.Sc.

IN his presidential address to the E Science Section, Sir Philip Magnus question which many have asked an educational science? His conclusion we are not yet in a position to reply in ative, but that such a science not only ought, to be developed. The first step acquisition of data and their systemat order that scientific principles may b therefrom. Dealing mainly with the primary education the president referre tally to the report presented last year t tion on "Courses of Experimental, Obs and Practical Studies most suitable for E Schools." This able document is ful which merit being tested by practical

on the lines laid down therein. It is
e to take down the last volume of the
ociation reports, and, having dusted it,
is report once more. The process of
y suggest reflections on our method of
(or wasting?) that part of the national
r available for scientific treatment of
problems. A committee of busy and
ent men and women is engaged for
examining into the methods of training
citizens. They confer and report, and
s read, printed, and—shelved. Can we
e some means by which inspectors, man-
teachers are in all localities brought
discuss such reports with a view to
he class-room? It would appear that
uthors and immediate hearers would
t work is being done by the standing
of the Educational Science Section.
ider declared at Glasgow that the future
ion would depend upon the solid effi-
hese committees.

the readers of THE SCHOOL WORLD to
Philip Magnus at first hand, I will deal
the sectional work, which falls under
iz. : anthropometrics in schools, scholar-
ms, secondary-school curricula, the
f biology, domestic subjects, and tech-
ng in relation to schools.

ussion on anthropometrics took place
meeting with the anthropologists, and
s speakers considered the matter from
al points of view, so that a really effec-
was possible. From the medical side
Horsley and others dealt with the ques-
lation to medical inspection of school
Mr. Ramsay Macdonald approached
t from the administrative side; while
naster's practical experience was voiced
yrick and Mr. Cecil Hawkins. Mr. J.
Prof. Sadler also spoke, and Baron
plained the experience of the Japanese
it, which has statistics relating to the
about a million children. Reports of
(1) "On anthropometrics in schools,"
nditions of health essential to the carry-
ie work of instruction in schools," were

It was clear from the discussion that
he public interest in this subject was
pired by a "physical deterioration"
the advantages to be reaped from sys-
ntinuous measurement of children were
teacher in dealing with the individual,
aster in dealing with the school, and
tor in dealing with the community.
er introduction to the scholarship dis-
uld have been wished for than the excel-
by Prof. Sadler and Mr. Bompas Smith,
nised the good effects, past and pre-
ir scholarship system, and did not con-
elves to denunciation, as did too many
speakers. There was a fairly general
that the competition for university
s was exerting an unwholesome effect
nercenary character. Principal Grif-
fiths gave a neat example by quoting the youth who could not accept a £40 scholarship, as "my master tells me I am a fifty-pounder." "And," added Principal Griffiths, "the boy was right; his master had correctly appraised his market value, and the boy would take no discount." Several speakers pointed out that education was vulgarised, and premature specialisation forced on schools, by the manner in which college entrance scholarships are awarded. One professor complained that he was unable to send his son to a preparatory school which did not prepare for scholarships, as no such school could be discovered! The provision of scholarships for girls was insufficiently discussed. Once more the giving of pseudo-scholarships as a bribe to entice pupils into the teaching profession was denounced, and once more no defender of the practice was to be heard. The desirability of awarding scholarships to lead to industrial or domestic training was a point made by several speakers, and emphasised by the president in his summing-up.

Perhaps the most interesting discussion followed the report of the committee "On Curricula of Secondary Schools," Prof. Armstrong directing attention to the fact that the Board of Education has practically assumed control of the bulk of secondary education through its grants and regulations. Sir Philip Magnus protested against the departure by the Minister of Education from the usual practice of submitting the policy of his department to the criticism of the House of Commons, and it was mentioned that the sectional committee had appointed a "watching" committee with power to act during the next twelve months. Mr. Page also spoke, and it was a pleasure to hear him supporting the report, which was presented with luminous annotation by Sir Oliver Lodge. The committee has been reappointed with additions, and asked to report next year "on the sequence of scientific studies." Prof. Morel (University of Paris) said that a new plan had been introduced in France since 1902. Secondary education extended over seven years, divided into two cycles, four years and three. In the first cycle five hours a week were given to modern languages, and in the second cycle they still held their place. For all boys between eleven and sixteen a living language was a chief subject of study. They aimed at transferring the educational functions of the dead languages to the living languages, but it was not yet possible to gauge the success of the attempt.

Among the papers on related subjects was a useful compilation by Mr. Thwaites, of Wyggeston School, Leicester, on "Conditions of Science Work in Secondary Schools." Visitors were also indebted to Mr. Thwaites for the interesting little exhibition of ingenious apparatus which he arranged in the school laboratories. Another exhibition which well rewarded those who visited the Narborough Road Schools was that of handwork from the Leicester Council Schools, arranged by Mr. Charles Bird.

D D

The Botany and Zoology sections united with educationists in discussing the teaching of biology in schools, and a large audience heard Mr. Latter and those who followed him. Pursuing the zoological branch, Mr. Latter advocated (*a*) nature-study at an early age, (*b*) the study of common animals, with attention to physiology. He would interpolate a year (at least) devoted to physics and chemistry, and deprecated any sharp division between the studies of function and structure. The paper contained many useful hints to teachers. Miss Lilian Clarke described the practical botany work at James Allen's Girls' School, Dulwich. Prof. Hartog spoke amusingly, and to the point; he did not hesitate to lay iconoclastic hands on certain idols of the professional pulpit. Prof. Hickson spoke on the training of natural history teachers, and the president urged that biology was especially suited to rural schools.

Under the heading "Types of Specialised Teaching" were grouped the questions of domestic and technical training in schools. Prof. Armstrong led with a strong paper, entitled "The Need of a Scientific Basis to Girls' Education from a Domestic Point of View." It is hoped that this will be published *in extenso*; it does not appear possible to give a summary that would do justice to its author. Incidentally it contained valuable suggestions for a course for the practical study of foodstuffs. Miss Stevens pleaded for a scheme of physiological hygiene, and Mr. Hugh Richardson gave one of those clearly-stated bright accounts of practical experiments in class teaching which the section has learnt to expect from him. Mr. Blair pointed out that one-third of the families in London had incomes below the "poverty-line" of 24*s.* per week, and considered the teaching of domestic economy with a view to a family budget of 28*s.* per week. From this point of view, the application of physics and chemistry was *in nubibus*. The antithetical grouping of utilitarians and their opponents was more marked in this discussion than in any other. The recent report of the Board of Education on the teaching of domestic subjects received severe castigation from more than one speaker.

Principal C. T. Millis, in his paper on "Problems of Trade Education considered in relation to our School System," urged the need for co-ordination between elementary schools, trade schools, and factories. The reforms needed were smaller classes, correlation of school subjects, and reform in teaching arithmetic; he asked for co-operation between parents, teachers, employers, and trade unions. Mr. Ramsay Macdonald read a business-like paper on "Day Trade Schools for Girls."

The discussions throughout the meeting were kept at a high level. No time was wasted by wandering from the main points, and the various aspects were fairly represented. The whole proceedings of the section are much better organised than in its earlier years, and whilst several of the earlier workers have contributed to this result, it is not invidious to express our ness to the president and recorder (S Magnus and Prof. R. A. Gregory) for t in making the Leicester meeting of Se solid achievement of good spade-wo cause of education. It is evidence of that whereas in 1901 the only associatio delegates was the Assistant-masters' As this year, in addition, representatives pointed by the Headmasters', Headm Assistant-mistresses' Associations, the Guild, the National Union of Teachers, ciations of Directors and Secretaries f tion, Private Schools, Preparatory Technical Institutions, and Teachers in Institutions.

SCHOOLS OF HELLAS.[1]

MR. FREEMAN was a very you the date of his death, and rea book will be prepared to find s turity in it; nevertheless, it is a good full of food for thought. It is specia ing in that the author, himself a p boy, and evidently an admirer of th of school which he knew, is quick parallels, such as offer both encoura warning to the present day.

He first describes the Dorian syste tion, where he sees the counterpart of boarding schools. In many respects t is close, but in the essential feature schools, trust and responsibility, the D fails, the consequence being that th grew out of these boys were not fit t were only useful as units under a s of discipline. There, indeed, they hav tage; discipline is the great lack in mod society, as everyone knows, unha Attic system, on the other hand, is voluntary day school. It is interesti that along with this distinction goes distinction, that in the Dorian syst had no place, whereas in the Attic sy the first place. This is a confirmatio Mr. Freeman does not clearly see it, damaging criticism now urged agai boarding schools. We do not believe unavoidable fault—on the contrary; c careful treatment, and so long as t schools are satisfied with their barrer life, so long will the day school, o which is chiefly of day boys, be sup whole; provided, of course, means counteract the prevailing fault of c lack of cohesion.

Mr. Freeman's study brings out oth points with force: the necessity for a development of all faculties and the enjoyment. We hold strongly that

1 "Schools of Hellas." An Essay on the Practice and Greek Education, 600-300 B.C. By K. J. Freeman. Rendall. With a Preface by Dr. A. W. Verrall. xx+30 4*s* net.

t to be enjoyable. There is plenty of elf-discipline, intellectual and moral, in e of education, without adding the boredom or distaste. We believe that study which causes distaste in ordinary lf-condemned, whatever the reason of e may be; and this book will do good it drives home this lesson. Another course, is the futility of trying to means of technical instruction.

scribing the method of education in . Freeman gives a few chapters to con- e theory, and he concludes with a paper ip his subject. Here he draws some our instruction, which we hope may o heart.

k is based on independent study, and ences are given throughout in footnotes. o other work of the kind in English, Girard's in French, which is twenty The authorities, if not exhausted, have hed, and a great deal of information ted. We are not always disposed to Mr. Freeman's speculations—where he instance, that the debasement of haracter in the fourth century was due osorption in intellectual pursuits. But ledge with gratitude the suggestiveness c, and its rich and well-arranged mass tion. The illustrations are excellent, eing printed in black on brick-red paper n very like the vases from which they

COMPOSITION AND GRAMMAR.[1]

rst three of these books are of less ortance than the remainder, and with n we begin. Mr. Rose supplies much rmation, with copious exercises. He young pupils, including, we regret, in- hy should infants be expected, for in- complete the ellipsis of "He is younger Let them even say "than me," and be . Wilsden suggestively explains how he a minimum of time the minimum of Eng- lar boys require for their Latin work. (*e.g.*, on *ing*-forms) he might be fuller. ery antithesis of Mr. Rose. The latter multiplying details for master and former declares that for both details

ge of "Notes" has three columns— "Examples and Truths"; "Method." seeks in briefest space to show how every possible English subject. We tness tends to "cram," not to educa- tion. Neither is it always correct. For instance, blank verse is merely called "a type of poetry which is not divided into stanzas," and "Milton, Pope, &c.," are the examples given!

Mr. Lovell's "Punctuation" is a masterly study—philosophical, historical, æsthetic, and practical. It inclines, however, to turn a good servant into a hard tyrant. Mannerisms like the following grow wearisome: "The reason, as Macaulay would have said, is obvious"; "Not that progress is always a good thing: the swine of Gadara in their madness made extraordinary progress."

The general superiority of American to English books on English composition is partly explained by the greater attention devoted to the subject in America. Mr. Huntington's "ideal programme" gives, the first year, grammar two hours weekly, composition three or four; the second year, grammar four (or five) hours, composition three (or two). With the longer time, the greater elaboration of American text-books is intelligible. We wonder if the elaboration encourages mechanical work and stifles individuality. The books under review are excellently planned, with details carefully worked out, while appropriate extracts from standard writers serve as models for the handling of themes. Mr. Huntington starts by emphasising the necessity of having something to say, and of saying it in one's own words, *to* someone, and in the best manner. He then lucidly discusses paragraphs, sentences, words, and the various types of composition. His subjects for practice are mostly selected from the everyday life—work and play—of American boys and girls. Further material is afforded by fifteen pictures—landscape, portrait, incident, architecture.

The "Manual" covers the same ground, but in a much more advanced way, laying stress, for example, on rhetoric. It handles effectively and with attractive illustrations the principles underlying narrative, description, exposition, argument, drama: in fact, it presents a study of literary theory and practice. Barring orthography, we unreservedly recommend the "Manual." We refrain from saying the same of Mr. Huntington's book only because it is so racy of America. Its American spellings, idioms and exercises, which render it "worthful" (his own word) there, diminish its school value here.

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y English Grammar through Composition." By J. D pp. (Bell.) 1*s.*
ng of English Grammar and Elementary Latin." By 130 pp. (Blackie.) 1*s.* net.
sons on English." 208 pp. (Pitman.) 3*s.* 6*d.*
as a Means of Expression." By A. E. Lovell. 91 pp. *f.*
English Composition." By T. F. Huntington. xxii+ acmillan Company.) 2*s.* net.
Composition and Rhetoric." By J. H. Gardiner, G. L. . L. Arnold. xi+500 pp. (Ginn.) 4*s.* 6*d.*

Racine, Athalie. Edited by G. H. Clarke. xxii+106 pp. (Blackie.) 10*d.*—We can speak highly of this edition. The introduction and the notes are excellent. We can only offer comments on some trifling points. On p. iv a reference to the rivalry of Pradon might have been made. On p. xii the pronunciation of the proper names might have been indicated in phonetic transcript, as this is employed elsewhere. On p. xiii the mode of scanning is unfortunate; it suggests that the alexandrine consists of feet, each of two syllables. What (we ask in humble ignorance) is the connection between *les cohortes de ses fiers étrangers* and the modern use of "mailed fist" (p. 85)? The expression "vowel h" (note on l. 269) strikes us as singularly unhappy.

THE APPLICATION OF SCIENTIFIC METHOD TO EDUCATIONAL PROBLEMS.[1]

By Sir Philip Magnus, B.Sc., B.A., M.P.

Is there an educational science, and if so, what is its scope and on what foundations does it rest? The object of the British Association is the advancement of science, and year by year new facts are recorded in different branches of inquiry, on which fresh conclusions can be based. The progress of past years, whether in chemistry, physics, or biology, can be stated. Can the same be said, and in the same sense, of education? It is true that the area of educational influence is being constantly extended. Schools of every type and grade are multiplied, but is there any corresponding advance in our knowledge of the principles that should govern and determine our educational efforts, or which can justify us in describing such knowledge as science? If we take science to mean, as commonly understood, organised knowledge, and if we are to test the claim of any body of facts and principles to be regarded as science by the ability to predict, which the knowledge of those facts and principles confers, can we say that there exists an organised and orderly arrangement of educational truths, or that we can logically, by any causative sequence, connect training and character either in the individual or in the nation? Can we indicate, with any approach to certainty, the effects on either the one or the other of any particular scheme of education which may be provided? It is very doubtful whether we can say that educational science is yet sufficiently advanced to satisfy these tests.

But although education may not yet fulfil all the conditions which justify its claim to be regarded as a science, we are able to affirm that the methods of science, applicable to investigations in other branches of knowledge, are equally applicable to the elucidation of educational problems. To have reached this position is to have made some progress. But we now see that if we are ever to succeed in arriving at fixed principles for guidance in determining the many difficult and intricate questions which arise in connection with the provision of a national system of education, or the solution of educational problems, we must proceed by the same methods of logical inquiry as we should adopt in investigating any other subject-matter.

[illegible]

of Education, first under the direction of my in this chair, Prof. Sadler, and latterly of h at the Board, Dr. Heath. But much of the we have obtained is still awaiting the hand of worker to be properly co-ordinated and ar careful collation of facts is indispensable if deduce from them useful principles for our gu unfortunately we in this country are too apt to when we have provided the machinery for the of such facts without taking the necessary st pare, to co-ordinate, and to arrange them on so principle for future use.

The consideration of education as a subject scientific investigation is complicated by the necessarily involves a relation—the relation or adult to his surroundings. It cannot b considered apart from that relation. We n study of the conditions of the physical, int ethical development of the child, but the l obtained is only useful to the educator wh in connection with his environment and futu the means to be adopted to enable him, as physical, intellectual, and moral strength, mastery over the things external to him. E be so directed as to prove the proposition that is Power." It can only be scientifically tre considered. Education is imperfectly descri garded as the means of drawing out and a child's faculties. It is more than this. definition takes into consideration the social conditions in which the child is being tra means of developing his faculties with a attainment of certain ends.

It is in Germany that this fact has receiv recognition and the widest application, and f we have been accustomed to look to that guidance in the organisation of our school looked to Germany because we perceived that had been there established between the tea the people and their industrial and socia farther, that their success in commerce, in other pursuits, was largely due to the tra in their schools. Unmindful of the fact tha a relation, and that consequently the sa education is not equally applicable to differ there were many in this country who were to recommend the adoption of German m our schools. Experience soon showed, howe may have been good for Germany did not app and that in educational matters certainly, to the Premier, who when addressing his [illegible]

[illegible]

to imitate too closely our own or any foreign
ey have started afresh, free from prejudice
ns, and it is for this reason that I look for-
nterest to the closer connection in educational
the colonies with the mother country, and I
we shall gain much knowledge and valuable
rom the discussions of the Federal Conference
recently been held in London, and which, I
is to be repeated a few years hence.

.ble as are the facts, properly collated and
y arranged, which a knowledge of British and
hods may afford us in dealing scientifically
ıcational problem, it is essential that we should
:st and to supplement the conclusions based on
dge, whenever it is possible, by direct experi-
cable to the matter under investigation. We
t recognised the extent to which experiments
, as in other branches of knowledge, may help
us to build up an educational science. Some
there was established in Brussels an *Ecole*
which educational experiments were tried. I
school in the year 1880, and I could easily
ny improvements in primary education which
way from that school through the schools of
l France to our own country, and, indeed, to
)f the world. From a special report on schools
i of Europe, recently published by the Board
ı, we learn that in Sweden the value of such
is fully recognised. We are told that in that
was early felt that the uniformity in State
of so strict a kind that some special provision
ade for carrying out educational experiments,"
ients in many directions have been made,
:ivate schools, which receive, however, special
from the State. We gather from the same
the State regards the money as well earned
)ol occasionally originates new methods from
:hools can derive profit." I venture to think
nental schools might with advantage be
ıder the direction of some of our larger local
The children would certainly not suffer by
the subjects of such experiments. The intelli-
g which they would receive—for it is only the
e teachers who should be trusted with such
—would more than compensate for any
ı the amount of knowledge which the children
e, and indeed such experimental schools might
l under conditions which would ensure sound
Many improved methods of teaching are
lvocated, but fail to be adopted because there
ınity of giving them a fair trial. As a general
ınly by the effort of private individuals or
that changes in system are effected, and
enabled to escape from the old grooves on to
educational thought and practice. It is not
:efer to many successful experiments. The
)duction into our schools of manual training
:t result of experiments carefully arranged and
· a joint committee of the City Guilds and
)ndon School Board. Experiments in the
teaching physical science, chemistry, and
ve been tried, with results that have led to
:h have revolutionised the teaching of those
ıe age at which the study of Latin should
:d with a view to the general education of
as been the subject of frequent trial. I would
ıch experiments more systematically organised,
ıite certain that the curriculum of our rural
and of our urban schools would soon undergo very considerable changes if the suggestions of competent authorities could receive a fair trial under conditions that would leave no manner of doubt as to the character of the results.

It would seem, therefore, that if our knowledge of the facts and principles of education is not yet sufficiently organised to enable us to determine *a priori* the effect on individual or national character of any suggested changes, education is a subject that may be studied and improved by the application to it of scientific method, by accurate observation of what is going on around us, and by experiments thoughtfully conducted. This is the justification of the inclusion of the subject among those that occupy the attention of a separate section of this association. Our aim here should be to apply to educational problems the well-known canons of scientific inquiry; and, seeing that the conditions under which alone any investigation can be conducted are in themselves both numerous and complicated, it is essential that we should endeavour to liberate, as far as possible, the discussion of the subject from all political considerations. Such investigations are necessarily difficult. We have to determine both statically and dynamically the physical, mental, and moral condition of the child in relation to his activities and surroundings, and we have further to discover how he is influenced by them, how he can affect them, and the character of the training which will best enable him to utilise his experiences, and to add something to the knowledge of to-day for future service.

Notwithstanding the undoubted progress which we have made, it cannot be denied that in this country there still exists a large amount of educational unrest, of dissatisfaction with the results of our efforts during the last thirty years. This is partly due to the fact that there is much loose thinking and uninformed expression of opinion on educational questions. No one knows so little as not to believe that his own opinion is worth as much as another's on matters relating to the education of the people. In this way statements, the value of which has not been tested, pass current as ascertained knowledge, and very often ill-considered legislation follows. In this country, too, the difficulty of breaking away from ancient modes of thought is a great drawback to educational progress. Suggestions for moderate changes, which have been most carefully considered, are deferred and decried if they depart, to any great extent, from established custom, and the objection to change very often rests on no historical foundation. Occasionally, too, the change proposed is itself only a reversion to a previous practice, which was rudely broken by thoughtless and unscientific reformers. The opposition which was so long raised to the establishment of local universities was largely due to want of knowledge on the subject; and certainly the creation, some seventy years ago, of a teaching university in London was actually hindered through a mere prejudice, which broader views as to the real purposes of university teaching and fuller information on the course of university development would have removed.

There never was a time perhaps when it was more necessary than now that education should be regarded dispassionately, apart from political bias, as a matter of vital interest to the people as a whole. Education nowadays is a question which affects not only the life of a few privileged, selected persons, but of the entire body of citizens. The progress that has been made during the last few years in nationalising our education has been very rapid. It may be that it has been too rapid, that sufficient

thought has not been given to the altered social and industrial conditions which have to be considered. We have witnessed a strong desire and a successful effort to multiply secondary and technical schools and to open more widely the portals of our universities. The object of the desire is good in itself. As the people grow in knowledge the demand for higher education will increase; but the serious question to be considered is whether the kind of education which was supplied in schools, founded centuries ago to meet requirements very different from our own, is equally well adapted to the conditions which have arisen in a state of society having other needs and new ideals.

Very rightly our students in training for the profession of teachers are expected to study the writings of Locke, Rousseau, Milton, Montaigne, and others; but many are apt to overlook the fact that these writers had in view a different kind of education from that in which modern teachers are engaged, and that their suggestions, excellent as many of them are, were mainly applicable to the instruction to be given by a tutor to his private pupil, and had little or no reference to the teaching of the children of the people in schools expressly organised for the education of the many. Only recently have we come to realise that a democratic system of education, a system intended to provide an intellectual and moral training for all citizens of the State, and so organised that, apart from any consideration of social position or pecuniary means, it affords facilities for the full development of capacity and skill wherever they may occur, must be essentially different in its aims and methods from that under which many of us now living have been trained. It has also been brought home to us that the marvellous changes in our environment, in the conditions under which we live and work, whether in the field, the factory, or the office, have necessitated corresponding changes in the education to be provided as a preparation for the several different pursuits in which the people generally are occupied. Yet, notwithstanding these great forces which have broken in upon and disturbed our former ideals, forces the strength and far-reaching effects of which we readily admit, we still hesitate to face the newly arisen circumstances and to adapt our educational work to its vastly extended area of operation and to the altered conditions and requirements of modern life.

When I say we hesitate to face the existing circumstances I do not wish to be misunderstood. As a fact, changes are continually being discussed, and are from time to time introduced into our schools. But such modifications of our existing methods are generally isolated and detached, and have little reference to the more comprehensive measures of reform which are now needed to bring our teaching into closer relation with the changed conditions of existence consequent on the alterations that have taken place in our social life and surroundings.

Four years ago, it will be remembered, a committee of this section was appointed to consider and to report upon the "Courses of Experimental, Observational, and Practical Studies most suitable for Elementary Schools." That committee, of which I had the honour to be chairman, presented a report to this section at the meeting of the association held last year at York. The general conclusion at which it arrived was that "the intellectual and moral training, and indeed to some extent the physical training, of boys and girls between the ages of seven and fourteen would be greatly improved if active and constructive work on the part of the children were largely substituted for ordinary class teaching, and if much of *the present instruction* were made to arise incidentally out of, and to be centred around, such work." It is perhaps, to expect that the suggestions made in should have borne fruit, but I refer to it becau trates the difference between the spasmodic refo from time to time are adopted, under pressure f of well-meaning representatives of special inte the well-considered changes recommended by a of men and women of educational experience carefully tested the conclusions at which they ha

The three R's, and much more than that, a and incidental parts of elementary education. is needed is a *Leitmotif*—a fundamental idea all our efforts and dominating all our pract venture to think that that idea is found in primary education on practical pursuits, on the gained from actual things, whether in the field shop, or the home.

Instead of fetching our ideas as to the tra given in the people's schools from that prov old grammar schools, we should look to the in which the great mass of the population of are necessarily engaged, and endeavour to cons a system with all such additions and improven be needed to adapt it to the varied requiremen life. By this process—one of simple evolutio everyday needs—a national system of educati built up fitted for the nation as a whole—a sy on ideas very different from those which, t centuries, have governed the teaching in our the practical pursuits connected with the fiel shop, and the home, and in the elementary science and letters incidental thereto, we m foundation of a rational system of primary ed

These three objects—the field, the works home—should be the pivots on which the s struction should be fixed, the central thoug ing the character of the teaching to be given urban schools for boys and girls. It was insisted on the importance of creating a s around which school studies should be gro view to giving unity and interest to the subje tion. I have elsewhere shown how a compl primary education may be evolved from lessons to be learned in connection with outd with workshop exercises and with the domes how, by means of such lessons, the child's be excited and maintained in the ordinary school instruction, in English, arithmetic, science, and drawing. In the proposals I ar cating I am not suggesting any narrow curriculum. On the contrary, I believe that, the child's outlook, by closely associating with familiar objects, you will accelerate development and quicken his power of acqu ledge. I would strongly urge, however, th should receive less formal teaching, that opp self-instruction, through outdoor pursuits, exercises, or the free use of books, should l so that as far as possible the teacher should the process by which in infancy and in early li intelligence is so rapidly and marvellously Already we have discovered that our scien towards primary education has caused us to essential difference between the requirements and of town life, and the training proper girls. Our mechanical methods of instructi down in codes, make for uniformity rather th and we are only now endeavouring, by piecem

r teaching somewhat more closely into relation
g needs. But the inherent defect of our system
have started at the wrong end, and, instead of
ır teaching from the things with which the
ready familiar, and in which he is likely to
's work, we have taken him away from those
s and placed him in strange and artificial con-
which his education seems to have no necessary
with the realities of life.

lem of primary education is to teach by prac-
ds the elements of letters and of science, the
ırate expression, the ability to think and to
will; and the ordinary school lessons should
lead to the clear apprehension of the processes
the child into intimate relation with the world
moves. During the last few years the import-
h teaching has dimly dawned upon our educa-
ıorities, but, instead of being regarded as
has been treated as a sort of *extra* to be
a literary curriculum, already overcrowded.
nown as manual training is to some extent
in our schools, but it forms no part of the
tinuous education. It is still hampered with
nconsistent with its proper place in the curri-
is unco-ordinated with other subjects of instruc-
over, no connecting link has yet been forged
e teaching of the Kindergarten and workshop
the school. We speak of lessons in manual
something apart from the school instruction,
g outside the school course, on the teaching of
al grants are paid. Twenty or thirty years ago
to talk about "teaching technical education,"
his unscientific way of treating the close con-
t should exist between hand-work and brain-
uthorities have not yet freed themselves.

we have long since passed that stage when it
t that the object of instruction in the use of
to make carpenters or joiners; but, judging
ort recently issued by the Board of Education,
em that it is still thought that the object of
ions to children of twelve to fourteen years of
training of professional cooks. Until the
pectors can be brought to realise that the aim
e of practical instruction in primary schools,
cookery or in other subjects, is to train the
through familiar occupations, to show how
ıethod may be usefully applied in ordinary
ıd how valuable manipulative skill may thus
lly acquired, it does not seem to me that they
have learned the most elementary principles of
profession. An anonymous teacher, writing
since in the *Morning Post*, said: "The cookery
e made an invaluable mental and moral train-
for the pupils, the most stimulating part of
ucation. It teaches unforgettable lessons of
and order, of quickness and deftness of move-
e use of the weights and scales demands
ıd carefulness, and the raw materials punish
or want of attention with a thoroughness
nost severe of schoolmasters might hesitate to
ical lessons in chemistry should form an
eature of each class. . . . The action of heat
re on grains of rice provides an interesting
ıe bursting of starch cells, and the children's
is awakened by watching the hard, isolated
ing in milk change to the creamy softness
ly made rice pudding. The miraculous change
white of egg when it is beaten into a mountain
of snowy whiteness gives them interest in the action of air and its use in cookery."

Can the teaching of grammar or the analysis of sentences provide lessons of equal value in quickening the intelligence of young children?

I must add one word before passing from this suggestive illustration of the value of scientific method in the treatment of educational questions. We live in a democratic age, and any proposed reform in the teaching of our primary schools must be tested by the requirement that the revised curriculum shall be such as will provide, not only the most suitable preparatory training for the occupations in which four-fifths of the children will be subsequently engaged, but will, at the same time, enable them or some of them to pass without any breach of continuity from the primary to the secondary school. There must be no class distinctions separating the public elementary from the State-aided secondary school. The reform I have suggested is unaffected by such criticism. The practical training I have advocated, whether founded on object lessons furnished by the field, the workshop, or the home, would prove the most suitable for developing the child's intelligence and aptitudes and for enabling him to derive the utmost advantage from attendance at any one of the different types of secondary schools best fitted for his ascertained abilities and knowledge. The bent of the child's intellect would be fully determined before the age when the earliest specialisation would be desirable. No scheme of instruction for primary schools can be regarded as satisfactory which is not so arranged that, whilst providing the most suitable teaching for children who perforce must enter some wage-earning pursuit at the age of fourteen, or at the close of their elementary-school course, shall at the same time afford a sound and satisfactory basis on which secondary and higher education may be built. And I hold the opinion, in which I am sure all teachers will concur, that a scheme of primary education pervaded by the spirit of the Kindergarten which, by practical exercises, encourages observation and develops the reasoning faculties, and creates in the pupil an understanding of the use of books, would form a fitting foundation for either a literary or a scientific training in a secondary school.

THE SCHOLARSHIP SYSTEM AT OXFORD AND CAMBRIDGE.[1]

By Dr. H. B. Baker, F.R.S.

The present system of open scholarships at the older universities owes its existence to Richard Jenkyns, Master of Balliol, 1819–1854. Until about eighty years ago help was given to students in two ways. There were scholarships, confined to particular schools, districts, or families, and there were servitorships or sizarships, the holders of which did not necessarily possess very high intellectual qualifications, but who were essentially poor men. Jenkyns's system was the offering of scholarships, after a competitive examination, to schoolboys without any reference to the question as to whether the money was or was not needed for their university education. The status of scholars was improved, and they were made to rank in the college immediately after the fellows. In a short time many of the most brilliant boys in public schools were attracted to the universities, and, what was more important, there was an improvement in the work of the

[1] Abstract of a paper read before the Educational Science Section of the British Association at its meeting at Leicester, 1907.

schools, which benefited not only the prospective scholars, but also the rank and file of the school. The competition for open scholarships is perhaps keener in our own day than it has ever been, and the success of a school is now gauged, quite wrongly in my opinion, by the number of open scholarships it can claim at the end of the school year.

It has been several times suggested during the last few years that the scholarship system involves a great waste of money, and schemes have been proposed which, while retaining the stimulus of competition, give the money only where it is needed. This seems the only logical position, and were the question as simple as it sounds few would hesitate to adopt one or other of the solutions. The most recent of these proposals is briefly this, that all entrance scholarships should be of the value of £40 a year, and that they should only be increased when the parent could prove that the increase was necessary. On the face of it the proposal seems reasonable, with the one exception that the giving of £40 a year to a scholar who does not need it seems a half-hearted measure.

Exaggerated statements of the waste of money given in scholarships are so often made that an attempt to arrive at an approximation to the facts should be of interest. The heads of all colleges at Oxford and Cambridge were asked to give an estimate of the proportion of their scholars during the last ten years who could have afforded to reside at the University without the aid of their emoluments. Acknowledgment is gratefully made to the kindness of these gentlemen and of the tutors of colleges in compiling the statistics which it is now possible to bring before the public. The estimates show that at Cambridge [illegible] of scholars could have resided at [illegible] scholarships, while at Oxford [illegible] [illegible] But even in many of those cases it was not [illegible] [illegible] [illegible]

r exercised improperly, or overworked. We delicacy of children's nerves. Especially fatal y of brain-exercise: the brain is not a muscle; n a paradox, there should be no work at all in ntal fatigue is daily forced upon children to llable injury.

rime needs are: (1) the encouragement of the which in childhood is actually at its best; sion of useless subjects.

bjects will not pass the following tests: (*a*) A learn the world of nature, and later of men, know it. This means nature-study and science t must learn the various aspects in which a wable—surface, area, form, numerical values. ch mathematics is necessary as is required to science and mechanics. (*b*) It must know t must learn to express its knowledge and t.

the ordinary sense is useless, but biological nary history is essential. No languages other rnacular should be learned. The old plea of involves many fallacies. Culture comes from refinement of surroundings: it cannot be its only importance is in the æsthetic side of teaching should be the answering of children's terms of the knowledge already acquired by As to the plea of "formation of character," ny fallacies enshrined here and in the ordinary f duty.

ARSHIPS FROM ELEMENTARY SCHOOLS.[1]

By A. R. Pickles, M.A.

ent of the National Union of Teachers.

ELATIONSHIPS.—In view of the rapid increase secondary schools and of the modernising of older foundations, and especially in view of ent pronouncements of the Board of Education a broadly democratic scheme of higher educa- f importance to define the precise relationship primary- and the secondary-school systems, in able to discuss a scholarship system with any

OF THE PRIMARY SCHOOL.—The old conception ry school as a place for teaching poor children 's, along with a smattering of history and has happily receded, giving place to the new which regards these schools as places for the right habits, for the cultivation of thought nce, and for fashioning the tools of learning. child's education as completed at the close ry-school period is an absurdity. He may, by the aid of a retentive memory, and by an uzzling inquisitiveness, pick up many scraps formation; but the powers of reason, of in- ought, of balanced judgment, lie latent in the to a very large degree. It is in the vital bout twelve to sixteen or seventeen that these n working strength, and it may therefore be hat all which goes before the age of about rely preparatory, and that the real educational properly dates from this time.

SFER TO SECONDARY SCHOOLS.—As the artisan taking an increasing share in municipal and national government, the supreme Imperial task of our time is the raising of popular intelligence, and it is as desirable as it will be beneficial to give the artisan as broad an education as is given to those whose privilege it has hitherto mostly been. As yet the greater number of our working-class children must go out at the age of thirteen or fourteen to earn a livelihood, but it is to be hoped that in the very near future a much greater proportion of the children even of poor parents will be able to proceed to a secondary school, especially if they desire and deserve it. So the essential thing at the present moment is to popularise secondary-school teaching; to make the lower middle and artisan classes feel that they have as great an interest as anybody in our secondary schools. The narrow ladder must give place to a wide corridor between the primary and the secondary schools.

THE PRESENT SYSTEM INADEQUATE.—If this view of the aim of the primary school and of the relationship between the primary and the secondary school be granted, then it follows that our generally existing method of awarding scholarships is wrong in principle as well as inadequate. A local authority offers x scholarships, and primary-school teachers far too often look upon the winning of scholarships more as bringing kudos to the school than advantaging the child. They eagerly scan previous years' questions, and do their best to anticipate what questions may next be set; and, on the other hand, the examiner generally tries to set what he thinks the child will not know. Neither is to be blamed. Under present conditions they could hardly do otherwise. The system is at fault. Then the list is announced, and the child with 55·9 per cent. of marks may secure a scholarship, and the next one with 55·8 per cent. is "just out of it." Surely the fact only needs stating to show its absurdity.

The principle, too, is wrong, remembering the new conception of the scope and aim of primary education. Secondary-school teachers frequently lament the "falling-off" of scholarship children, despite the fact that a fair number of such have done well. If there must be a competitive examination, it would be preferable to give the candidates some new work to prepare in the examination room, and judge their capacity and intelligence by their power to get knowledge for themselves, rather than by their power to yield up what has often been so laboriously crammed into their heads.

NOMINATION AND CONSULTATION.—It would be well if all special preparation could be avoided. It should be possible at the end of the educational year to ask the teachers in primary schools what children desire and deserve to go forward to a secondary school, and, after nomination, the secondary-school teacher should meet the candidates face to face; then, by a few skilful questions and by consultation between the primary-school and secondary-school teachers, a wise selection could be made, a selection based, not upon the throw of a single examination—often too much of a lottery—but upon the child's school record and upon the secondary-school teacher's personal opinion of those latent powers which are at this time just beginning to make their presence evident.

NUMBER OF SCHOLARSHIPS.—There seems no reason why these scholarships should not vary according to the number of suitable applications. The list of children who may "desire and deserve" scholarships is not constant, but varies from year to year. There should be no poverty barrier. Maintenance allowances should be awarded where necessary, but no child ought to be transferred to a secondary school unless the parents are prepared to allow attendance for a full four years' course. For those who

[1] a paper read before the Educational Science Section of the ion at its meeting at Leicester, 1907.

cannot do this the tops of the elementary schools should be strengthened in order to give an extended education for a year or two, of a type useful both for a livelihood and for life. That hybrid institution, the so-called higher elementary school, is a needless excrescence.

THE FUTURE OF BRIGHT CHILDREN FROM POOR HOMES.—As public money is spent to benefit the State as well as to help on the child, it would appear desirable that much more care should be taken to secure suitable employment for these children at the termination of the secondary-school course than is generally taken at present. It seems in one sense a waste of public money to give an efficient higher education to a promising lad, and then find him at fifteen or sixteen years of age starting work as an errand-boy, and even in some cases entering the ranks of unskilled labour. Not but that the errand-boy is all the better citizen for his education; yet it is disheartening to many a bright lad to find the doors bolted against him in the walk of life he would select, because he lacks influence. He should find it possible to serve his town and his country in that station in life for which his capacity and intelligence fit him, remembering Plato's rule, "that children should be placed not according to their father's conditions, but according to the faculties of their mind."

CO-ORDINATION OF CURRICULA.—It is obvious that the more natural and easy the transition is made from the primary to the secondary school, the less will be the wastage of time and effort in settling down in the new school. To this end there should be periodical conferences on questions of curricula, and, so far as is practicable, a continuity in the scope and aim of the instruction, with the object of rendering easy the passage of intelligent pupils from the primary to the secondary school.

TRADE EDUCATION IN RELATION TO OUR SCHOOL SYSTEM.[1]

By C. T. MILLIS, M.I.Mech.E.
Principal of the Borough Polytechnic, London.

THE object of this paper was to point out the several problems connected with the continuance of education beyond the elementary-school stage in the direction of technical or trade education, and to make suggestions that may be useful in deciding whether the higher elementary school or some other type of school is the best suited for the purpose. There is a general consensus of opinion that some reforms are needed in our elementary-school education to make it an effective preparation for the battle of life, especially for those children who will take up industrial work. The time is ripe for the discussion of the question, seeing that there is an increasing number of persons who feel that elementary education has hitherto given too much attention to the requirements of those going into clerical occupations and practically none to those of the children going into trades. The education has been too bookish, has tended to increase the taste for mere clerical work, and has not impressed children with ideas of the dignity of labour. The bright children wishing to enter the office or the Civil Service, or to become teachers, have had opportunities of entering secondary schools by means of scholarships, whilst, broadly speaking, there have been no schools of a practical character for children to enter who are going into trade, or scholarships provided which would assist them.

[1] *Abstract of a paper read before the Educational Science Section of the British Association at its meeting at Leicester, 1907.*

There is a great tendency to regard the effor good workmen as utilitarian and to a certain derogatory compared with the humane side of though this side is often quite as utilitarian, is given as a means of piling up marks anc coveted positions in the professional world. Th and utilitarian subjects of education are not mu clusive; each has power to make noble chara high ideals for work, and education has no oth The inference which seems to lie at the root c notions of culture, that the more useful a subj less is its culture value, is wrong.

New conditions in our industrial system owi introduction of machinery and subdivision of lab bined with decline in apprenticeship, make it ne provide a broad basal training in our education for those who are to become skilled workmen, v discourage young workmen from being conten knowledge of one or at the most two branches ever trade it may be, and will render them mor all-round men, able to cope with the ever-var ditions of manufacturing industries. The absenc knowledge tends to increase the number of u The importance of the subject is recognised by tion of apprenticeship committees, reports of committees, Mr. Edric Bayley's pamphlet on "Training in Elementary Schools," and Circular by the Board of Education. All these, as w establishment of several types of trade and schools, notably in London, are evidences of a unrest.

The types of schools may be considered u heads: (*a*) Trade schools for girls; (*b*) (specialised) trade schools for boys for particul and (*c*) technical or preparatory trade schools.

SCHOOLS OF TYPE (*a*).—Highly specialised schools for girls, between fourteen and sixteen age, in needlework trades, as dressmaking, lad ing, waistcoatmaking, upholstery, &c., mo Parisian schools. These take the place of app up to the "improver" or assistant stage, but more valuable if preliminary training were p one year between the elementary and the trade

SCHOOLS OF TYPE (*b*).—For boys, between fo sixteen years of age, hoping to become for managers, chiefly from higher elementary and schools. Engineering and bakery trades we dealt with. These only provide for the few b and only touch the fringe of the question.

SCHOOLS OF TYPE (*c*).—For boys who will en between fifteen and sixteen years of age, suitab mass, and providing preparatory trade training: tion to be deferred to the last year. Such schools under modern conditions in that too early spe and late age of entering trades are avoided. ability is required. Fundamental principles r handicraft are taught; no attempt is made to repl shop experience, but merely to shorten the period ing a trade. Practical mathematics, science, and workshop practice in relation to various trades are taught. The opinion of manufactu favour of better trained workers, of whom they is a scarcity.

The State and educational authorities for m have failed boldly to grapple with the question of better opportunities for the training of the workers. There has been an indecision of po we had a few day classes in the same subjects

: syllabuses as those suitable for evening classes
:e and art; next the organised science schools
nilar conditions, which were really not organised
these were improved, and we had what became
s the Division A type of schools, which were
ısferred from the management of South Kensing-
'hitehall on the reorganisation of the Education
:nt to a Board of Education. The Division "A"
schools was squeezed out of existence by the
ıs for secondary schools, and clause 42 of the
ıs for evening schools was introduced as a
f dealing with schools of types other than
. Lastly, we had the higher elementary school
ınd by a process of evolution we are coming to
schools of various types.

/eral types of trade schools are better suited to
of the times and are more needed than higher
y schools. These trade schools, in close con-
ith or in technical institutes, and working under
of the South Kensington branch of the Board
ion, will be a greater success than any schools
regulations of the Whitehall branch—that is,
ld be administered under codes drawn up by
› are intimately in touch with development in
vork.

the full value out of such trade schools there
reform in our scholarship system and in our
schools. The reforms most needed in our
schools are smaller classes, a simplified curri-
wer special subjects, more correlation, and
nts in he teaching of arithmetic, which must
in connection with geometry from an early
e combined with manual work. Manual work
a real part of the school work, and not be
n as a special subject.

-ordination is needed between the work of the
school and that of the trade school, so that
ill enter them better prepared between thirteen
en years of age, and one year's work of the
l course will be saved.

ıortant general principles to be considered in
hment and management of trade schools are:
the school course to permit boys to enter any
at the right age.

'dinate the work at the beginning with that of
:ary school if possible, and *vice versa*.

rdinate the last year's work with the system of
ıip followed in the trade to avoid waste of

'h the labour market in order to guard against
ıecialisation.

: the right kind of teacher.

managed by the co-operation of parents,
mployers, and trade-union leaders, there will
osition. An adequate supply of well-trained
touch with the requirements of trade is neces-
h the science subjects cognate to various trades,
: special trade subjects the teacher must be a
has had actual trade experience of workshop
conditions.

1. *K. Johnston's Illustrations of Insectivorous* 6*d*.—This wall-sheet contains coloured pictures serve to convey rough ideas of seven of the insectivorous plants. The descriptive para-ıe foot of the sheet contain no fewer than three elling, and the bladderwort is erroneously re-*Pinguicula vulgaris*.

CONDITIONS OF SCIENCE WORK IN SECONDARY SCHOOLS.[1]

By R. E. Thwaites, M.A.
Wyggeston School, Leicester.

In a paper on the "nternal Economy of School Science," read before the Public School Science Masters Association in January, 1907, figures were presented relating to conditions of science work in thirty-six public schools. More recently similar data have been obtained from about the same number of secondary schools, working in conformity with Board of Education regulations.

In both cases information was asked for on the following points: Number of boys taking science in (i) general course, (ii) special course; average number in class; number of hours per week for (i) general course, (ii) special course; number of science masters number of laboratory assistants; approximate annual expenditure for science; and answers to the following questions Do you consider your present arrangements to be adequate in respect of (i) laboratory accommodation, (ii) laboratory equipment, (iii) staff, (iv) laboratory assistants?

The average results may here be given:

Public Schools.—In twenty-nine schools 60 per cent. of the boys take science: in twenty-three of these the average percentage of boys in the general course is 95, the remainder being specialists. The number in class for twenty-seven schools is 21·5 in the general and fourteen in the special course. The time for the general course is four hours a week, usually divided between chemistry and physics, and for the special course twelve hours. In eighteen schools the annual expenditure per boy was about £1. Chemistry costs more than physics for maintenance. In twenty-three schools there is a science master for every seventy-six boys and a laboratory assistant to every 147 boys Sixty-five per cent. of the correspondents were satisfied with their laboratory accommodation, 71 per cent. with equipment, 77 per cent. with the number of the staff, and only 58 per cent. with laboratory assistants.

Secondary Day Schools.—All boys above twelve years of age take science. The percentage of boys in the general course, lasting four years, is 94, in the special course 6. The average number in class in the general course is 22·6, in the special course eight or nine. The number of hours for science in the general course is rather more than four a week, and in the special course rom eight to fifteen. The work is usually divided between chemistry and physics very little biology is taught. The annual expenditure per boy for apparatus and chemicals is 8*s*. 6*d*., or 2*s* for one hour of science a week. The average number of boy-hours a week for one science master is about 310. There is one laboratory assistant to 218 boys. Ninety per cent. of the correspondents are satisfied with their staff, 77 per cent. with laboratory accommodation, 80 per cent. with laboratory equipment, and 50 per cent. with laboratory assistants.

It will be seen that the ratio of specialists to boys in a general course is roughly the same in the two classes of schools. In the matter of expenditure, the day schools are markedly inferior to public schools. In both there are too few laboratory assistants. The consequences of this misguided economy are that the time of the science master is wasted in drudgery which could be performed less expensively by an assistant, and opportunity for preparation of experiments is lacking.

In answer to the question, "What do you consider to

[1] Abstract of a paper read before the Educational Science Section of the British Association at its meeting at Leicester, 1907.

be the maximum size of a laboratory division for successful work?" the average reply from thirty schools was: Twenty boys in the lower classes, twelve in the higher. It need not be said that these figures still represent only a pious aspiration in many cases.

Another question addressed to the same schools related to the advisability of teaching experimental mechanics as part of the science course. The answers showed a strong feeling of the value, and even necessity, of such a course as a preliminary to all advanced work in physics.

HISTORY AND CURRENT EVENTS.

"REFERRING to the possibility of war becoming more rare, Prince Bülow observed that there was a growing solidarity between the interests of nations, and that the least disturbance in one country affected all the others. On that ground it was reasonable to suppose that wars would gradually become less frequent." On the same page we read also a paragraph summarising the losses of Germany in South-West Africa; another stating that "agrarian disorders have broken out in the Russian province of Kherson"; a third reporting that "public opinion in Denmark is opposed to further concessions to Iceland"; and a fourth concerning a rivalry between German and English firms in supplying quick-firing guns to the Greek army. Yet Prince Bülow is an honourable man, and, we presume, an able and wise statesman.

Two members of the House of Commons have been referring to the impeachment of Oxford in 1715 and of Buckingham in 1627, connecting these events with the creation of peers recommended by those statesmen, and trying, by implication, to draw parallels between these events and those of the present day. The Prime Minister referred to the members as "archæologists." He regarded impeachment, therefore, as an institution which had long become obsolete, and impeachments as events in that history which have no practical relation to current events. The whole proceeding was received by the House with amused laughter. We remember that a similar reception was given to a proposal in 1878 to impeach Lord Beaconsfield for bringing Indian troops to Malta during the crisis of the Berlin Conference. When was the first impeachment? When was the last? What is the nature of the process? How many have been successful? What light does the history of the institution throw on the Constitution, especially of the power of the House of Commons at any given period? Why is it now a subject merely of archæology?

WE have now become familiar with what used to be called the "Celtic fringes" of the Anglo-Saxo-Danish population of this island. We have our chronic trouble with Ireland, and even Wales and the Highlands and Islands of Scotland do not quite agree with the Englishman. But our difficulties are apparently small compared with those of Germany and Austria-Hungary. Germany has Frenchmen in Elsass-Lothringen, Danes in Schleswig-Holstein, and Poles in her eastern provinces. To the French and Poles she is severe because there is danger on these two frontiers. Danes are treated more gently because Denmark is not likely to cause trouble. But even German troubles are nothing compared with those of the Austro-Hungarian Empire. We referred last month to difficulties between Magyars and Croats, and now we read that a Ruthene deputy in the Reichsrath wished to speak in Russian, and was allowed to do so. There are eight languages legally [illegible] the deputies of the Diet. Is even Home Rule a cure for these dislikes?

"THE Supreme Tribunal of Justice . . . gave in favour of the validity of the recent non-Par decrees. This decision, being the unanimous the twelve senior judges, is a distinct triumph Government." The news is from Portugal, King and Parliament are at variance. But ha phrases a curious half-resemblance to what m been a newspaper report (if there had been such the seventeenth century) of the result of that fa Rex v. Hampden, 1638? And we think of the its connection with the censorship of the Press read further that a Portuguese Republican jo been fined a second time for libelling the K "Republican" read "Puritan," and for "K "Archbishop," and the names of Prynne, Bas Burton instinctively rise to our memories. We King Carlos has read his Gardiner, and what of "Thorough."

ITEMS OF INTEREST.

GENERAL.

THE British Association held its seventy-seve meeting during the first week of Augus Leicester for the first time. Favoured with shine, the meeting proved an undoubted success side no less than the scientific. The places were rather more scattered than usual, but thi was mitigated by the admirable tram service, afforded cheap excursions over this prosperou more than a quarter of a million inhabitants. gramme included the usual popular discours parties, and soirées; and the local commi congratulations and thanks. One of the m features of these annual congresses is the fi of friends separated for the rest of the year. happy idea which inspired the designers of th rendezvous whither many were attracted aft work of the sections to tea and a chat mid s of a charm not easily forgotten. A *résumé* of t of the Educational Science Section, by Mr. G. will be found in another part of this issue.

THE vacation school inaugurated in 100 Humphry Ward at the Passmore Edwards Tavistock Place, London, met with even more usual this year. At the opening of the sc beginning of August, Mrs. Ward said that th of the school is shown by the fact that, when the daily attendance was under 400, it rose t more than 1,000. The keenness of the childr was shown by their happiness and energy, letters received from parents whose feeling wa in favour of the school. The classes for han extended this summer, tailoring was added, and class for boys was one of the most popula successful. For the woodwork class the Lon Council lent a complete manual training equi school is undoubtedly an interesting educati ment, and the question is how to multiply s classes. We agree with Mrs. Humphry Ward buildings and playgrounds vacant at this time should be utilised for the organised recreation By giving some idea of the subjects to which c chiefly as holiday pursuits, it may be said that t those the variety offered made it possible to

children could choose from woodwork, iloring, gymnastics, swimming, cookery and recreative needlework, netting and string- :t work and cane weaving, cardboard work, modelling, brushwork, nature-study, reading, ging, musical drill, dramatics, gardening, and ımes. Arrangements were made to allow all ldren—the boys especially—to spend almost all n the handwork chosen by them should they Physical exercise and games, however, were ɔn all.

eenth annual meeting of the Society of Art held at the Victoria and Albert Museum, ngton, at the end of July. Mr. Joseph A. West Bromwich, was re-elected chairman of The annual report shows that the numerical the society has been well maintained. A ıolding art examinations in secondary schools ıugurated by the council, and notices of the the society to hold such examinations have to nearly 2,000 schools. Though as yet the headmasters and headmistresses has not been the experience of the first year leads the lieve the examination scheme will prove useful schools.

e auspices of the Workers' Educational and with the assistance of the Oxford Uni- ısion Delegacy, a conference of working-class nal organisations was held at the Examina- at Oxford on August 10th. More than 200 from different parts of the country sent s. The Bishop of Birmingham presided, and ourse of his address referred to his recent ıe House of Lords on the Universities of Cambridge. He said that, quite in brief, what that the ancient universities, and Oxford in ıall be maintained before all else as places of , so that it shall become more and more a uth that those who do not want to be serious out of place in a university, and that the and resources of the university shall be le as far as possible for all those who really serious students. That means, in part, that ɔe made available on the spot where the and it means also, in part, that they must ty extension in the old sense, but also with a ion—that it shall be regarded as the normal ıe universities to supply thorough, systematic, teaching. The Bishop of Birmingham advo- ɔrmation of small classes provided by the ucational Association on the one side and the the other to supply the teachers.

nn general meeting of the Incorporated f Assistant-masters will be held this year at d's High School, New Street, Birmingham, 14th. The chairman, Mr. A. A. Somerville, , will deliver an address on the work of the rt will be submitted by the Emergency Com- Richmond (Yorkshire) case; and Prof. Muir- University of Birmingham, will read a paper ɔ in Secondary Schools." A meeting of the e association will take place on the previous South Midland branch of the association is ngements for providing hospitality for those ɔ desire it; early application should be made G. H. Moore, 3, Windsor Terrace, Hagley ıgham.

WITH the assistance of the Chadwick Trustees, arrangements have been completed to hold a new course on school hygiene, including lectures, demonstrations, and practical work, at University College, London, beginning on October 16th. The course will be given by Prof. Henry Kenwood and Dr. H. Meredith Richards. It is designed to meet the requirements of teachers, school lecturers, and those qualifying to become school inspectors and school medical officers. A certificate of proficiency will be granted to those who qualify themselves.

THE County Councils' Association has issued a return as to the assistance given by the various county councils to secondary schools in their respective areas. The return can be obtained, price threepence, from the secretary of the association at Caxton House, Westminster. The first question addressed to the authorities was: What grant for maintenance is given to secondary schools within the county, whether (*a*) block, (*b*) capitation, or (*c*) total maintenance? From replies to this question, it appears that block grants are the usual arrangement, while a fair number of counties possess county secondary schools which they maintain entirely. Capitation grants are given in fifteen county areas, and four of these authorities only do not restrict the grant to children within the county. In many cases county scholarships are tenable outside the county area. In fourteen counties the amount of the school fee conditions the amount of the county grant. Generally there is no differential treatment between endowed and non-endowed schools. These are the chief points dealt with in this very useful return, which we commend to the attention of students of educational administration.

IN our last issue (p. 308) we directed attention to the adoption by the authorities of Clayesmore School, Pangbourne, in their award of scholarships, of the method of selection of boys for entry at Osborne College. This month we have to record a very similar experiment on a larger scale in the West Riding of Yorkshire. The Education Committee of the County Council this year inaugurated a new form of examination for intending pupil teacherships and county minor scholarships. Under the new scheme there were three distinct stages in the examination: (1) a consideration of the original applications by a local committee of teachers with power to reject candidates whom they thought manifestly unfit; (2) two written papers, one on English, designed to test the power of accurate writing and to bring out native power of thought, the other a wide paper on arithmetic, so constructed as to give every candidate ample opportunity of showing accuracy of work, grasp of method, and ability to deal with simple problems rather than with mechanical rules; (3) an oral examination, confined in the first instance to those who had reached a given percentage of the possible total on the two written papers. Under certain conditions, however, a few other candidates who had taken the written papers were admitted to the oral examination on the special application of the head teachers.

THE oral examination consisted of a passage to be read aloud, followed by questions on any topic that suggested itself, designed to bring out in the main four points, viz.: powers of observation; powers of inference and grasp of an argument, involving the application of knowledge of facts and simple scientific principles to new conditions; general miscellaneous knowledge; power of rapid calculation—mental arithmetic. The chief difficulty to be over-

come was nervousness, especially on the part of the girls. The results were important and highly instructive. Especially in the case of intending pupil teachers the examiners were able to assess to some extent those personal qualities which go so far to the making or the marring of a teacher's career; and in the long run there is no doubt it will be to the rejected a boon to have been debarred thus early from starting on a career where they would never do well. One remarkable result of the oral examination was the reversal in more than one case of the judgment formed on the paper work only—at one centre it may almost be said that the candidates came out in exactly the reverse order to that in which they previously stood—and another was the great superiority in general of the candidates for the county minor scholarships over those who wished to become intending pupil teachers. One other point may be mentioned. In scarcely any case where candidates were rejected on the written examination, and subsequently at the request of the head-teachers admitted to the oral, did they prove to be worth the extra time spent on them—in some cases very much the reverse.

DR. THOMAS MUIR, Superintendent-General of Education for the Cape of Good Hope, in his report for the year ending September 30th, 1906, deals, among many other interesting topics, with the supply of trained teachers in the colony. Several causes, he states, combine to make it difficult to train locally an adequate supply of teachers even for the European schools. The first is the high number of teachers required in proportion to the number of pupils. Owing to the large number of very small schools this proportion is one teacher for every twenty pupils. The second cause is the short time the trained woman teacher remains in the profession, the average term of service being under five years. The number of trained teachers, therefore, required every year simply to fill up vacancies in the ranks is large beyond the average. Another cause lies in the vast extent of the country and the difficulties of travelling. Teachers trained in the more thickly populated centres decline invitations to posts in the more remote districts. The isolated life deters them, and the physical discomfort and expense of the long journey. From this it follows that the work of training must be carried on at many centres through the colony. Experience has proved that the only efficacious method of meeting the demand for trained teachers in the small rural schools of outlying districts is to train a sufficient supply in the central town school of the division. In the last place it may be added that for many years the northern South African States have drawn largely on Cape Colony for their supply of teachers.

THE latest report of the U.S. Commissioner of Education deals with the year ending June 30th, 1905. It is several hundred pages shorter than most of its predecessors, but is full of interesting information. In his introduction the Commissioner remarks that the percentage of male teachers in the whole teaching body in the States has steadily decreased for many years, but for the years 1900–1905 the total number of male teachers employed in the schools has actually declined, in spite of the great increase in the total number of teachers employed and the total number of pupils enrolled. In the case of city schools there has been no such decline in the numbers of masters at work, but, on the contrary, the percentage of increase in their number for the year 1904–5 was greater than the percentage of *increase* in the number of women teachers.

THE report includes an article by Mr. Andrew the New York secondary schools. The rapidit in the high schools located within the territo by the boundaries of Greater New York si altogether unprecendented in the history o education. In 1897 the number of high-sch was 2,360; in 1904, 27,824; an increase of 1,0 Within the same period the number of teache from 111 to 841, or 658 per cent.; the ann tures from £32,200 to £584,530, an increase of per cent.

SCOTTISH.

A MEMORANDUM, prepared jointly by Dr. Mackenzie, of the Local Government Board, Foster, of the Scotch Education Department, of physical training and their relation to t hygiene of school life, has been issued by the to members of the new provincial committ training of teachers. The circular may be the knell of the drill sergeant whose bluff fr choleric disposition have at once been the ch terror of school children during the past t decades. The circular very rightly points military drill system which they stood f possessed of many valuable points, was alto place in the training of children. The growth has invaded the theories of physical the new system is designed to suit childre ages and different stages of development. R investigation has shown that a large percenta suffer from some physical defect or ailment w special treatment; hence the need for th exercise," and hence also the necessity for inspection of the pupils preliminary to any p ing in schools. The physical exercise of the be given under the direction and supervisic medical officers, assisted by instructors tr general physiology of nutrition and gro physiology of bodily exercise, and in the re management of defects and diseases.

DR. LESLIE MACKENZIE and Captain Fos issued a report on a collection of statisti physical condition of children attending the of Glasgow. The chief value of the figures i in the fact that they are co-ordinated with to the housing and general physical surrou pupils. For purposes of investigation, the divided into four social groups. Group schools in the poorest district—twenty-six 24,661 children; Group B comprised schools not the poorest, districts—twenty-seven schoo children; Group C comprised schools in good districts—eleven schools and 11,453 ch Group D included schools in the best districts and 11,395 children. It will thus be seen tha of cases investigated was sufficiently numer general deductions being made. The facts conclusively proved that the size of the dwell a remarkable bearing on the development The children reared in small houses were alm smaller and lighter than those in more comm ings, and the averages for height and wei perceptibly in the progression from Group A Perhaps, however, the most startling and s brought out is that in each group, from t the lowest, these averages are below the stan

ɔpometric Committee of the British Associa-
ɔmbined with the facts of physical degeneracy
: the School Hygiene Congress by the medical
n College, seems to prove that the degeneracy
one of class, but one of race. One would,
to be certain that it is not the standard
are at fault.

who were actually serving in recognised
ntermediate and secondary schools at the
issue of the regulations on the training
June, 1906) are required to make appli-
ık as specially qualified teachers in par-
:s before December 31st, 1907. Recogni-
be given for a *genuine specialist qualifica-*
very few teachers can possess in more than
ıbjects. Teachers who have hitherto taught
ts in their form will not be recognised as
fied in each of these, but only in that sub-
:ts) in regard to which they have held an
responsible position in the school. Applica-
gnition should be made on special forms
obtained on application to the Department.

ıt circular has been issued by the Scotch
ɔartment providing for the future allocation
for instruction in science and art. These
been paid at so much per head per hour.
nt has at this late hour awakened to the
placing of a premium on a single depart-
in a secondary school is educationally un-
For the future, therefore, it is proposed to
ıle work of the school the basis of grant,
selected subjects. It will be a condition of
he new regulations that the work of the
ducted according to a curriculum proposed
ers and approved by the Department. In
due provision must be made for instruction
art, but having due regard to the other
should form part of a well-ordered course
ɔducation. It has been found possible to
grant thus available for distribution from
£4,500. A very tempting bribe is thus held
ary schools to put themselves completely
s of the Department. The reform in the
ɔcating the grant is wholly admirable, and
nded to elementary schools as well; but it
good of education that one class of school
in Scotland is compelled to surrender its
nd pass over, bound hand and foot, to the
remote central authority, admirable as it
vn itself to be. All advance springs from
·pe, and the fates seem to decree that in
ure there shall be no variation.

of the training colleges, so far as denomina-
is concerned, is now an accomplished fact.
: they passed under the control of the pro-
:tees, although technically the transference
lly completed until the passing of the pro-

The Scottish training colleges, though
ıominational, have really been national
d have done national service. The services
s in this connection should not be forgotten.
parties and Government itself had little
ucation, these bodies came forward and at
provided schools and training colleges.
lministered with a single eye to national
in no case for proselytising purposes. At
the Education Department they have now
handed over these training colleges with their splendid equipment, their capable staff, and their great traditions. They are taken over, as the senior chief inspector testifies, in a state of the most thorough efficiency, and it is hoped that under the new authorities they will not only maintain, but increase their reputation.

Sir Henry Campbell-Bannerman, in intimating the Bills he hoped to see passed this session, included among them the Education (Scotland) Bill. Scotland, he said, had waited long for the Education Act, but it would only be passed this session if treated as an unopposed measure. Mr. Gulland earnestly hoped that the Government would persevere with the measure. Education in Scotland was being paralysed because of legislative inaction. Sir Henry Craik, speaking on behalf of the Opposition, said that there would be no obstruction of the Bill from his side of the House, and he was ready to do all he could to help the measure forward. But he warned the Government that he would not take it in an emasculated form with the provisions for the better pensioning of teachers omitted, as had been suggested in certain quarters.

School boards and managers of schools in Scotland are reminded that next year separate papers in history and geography will be set for those candidates who are presented in higher English. It has been decided to allow one hour and a half for each of these papers instead of one hour, as intimated previously. The specimen paper in geography which has been issued is on excellent lines, and follows closely the most approved methods of treating this subject. A specimen paper in history will be sent out at a later date.

IRISH.

The Report of the Intermediate Education Board for 1906, recently issued, is on the usual lines, with one conspicuous exception. The Board has felt bound "once more to call the attention of his Excellency to the urgent necessity of establishing a permanent system of inspection," and this is done in a protest covering three and a half pages of excellent argument. The Government's action in recent years, it is justly said, has led to an "enforced stagnation of policy now severely condemned by cultivated opinion in Ireland: it is perpetuating a false and corrupting conception of the real ends of education; and it is sacrificing the highest interests of large numbers of pupils whose gifts would respond to a more elastic and skilful treatment." The report points out the large number of important departments of school life which cannot be touched by a mere examination system—the number and qualifications of assistant teachers, methods of teaching, the time-table and distribution of work, the system of promotion and discipline, the moral tone and manners of the pupils, the character of the school buildings, with reference to health and good order, the capacity and ventilation of the class-rooms, the provision of libraries and reading-rooms, and the arrangements for games and recreation. While the inspector would by conference suggest improved methods of teaching and organisation, the schools would regain their freedom. It is to be hoped that this memorandum will not fall on deaf ears.

The Board is not equally emphatic on that other side of school efficiency, viz., the school grant, and note might well have been taken of the loud and deep discontent at the reduction year after year in the rate of payment. The scale for 1906 varies from £3 3*s.* per pupil passing in the preparatory grade to £21 5*s.* 3*d.* for a pass with honours in the senior grade. In 1905 the corresponding figures were

£3 16s. and £25 13s. Three years ago the rate was nearly double what it is for 1906. While the teacher may possess an *animus non temere avarus*, the discouragement he feels when his earnings year by year decrease is not likely to be allayed by the kindly words, however honied, of an inspector.

We must do the Board, however, the credit to say that the total amount of the grant, £50,000, was not less than in 1905, but even to keep this figure the Board was compelled to transfer over £2,000 from capital to current account. The decrease in the scale is therefore only partially accounted for by the Board's falling income, and as a matter of fact is due to what in itself is a subject of national congratulation, the increase in the number of pupils entering for the examinations. This is the more remarkable in view of the decreasing population of the country. The number was the highest on record, viz., 10,967, being 1,290 or 13·3 per cent. more than in 1905. The boys totalled 7,790, and the girls 3,177. The numbers entering in the different grades were—boys: senior 482, middle 1,305, junior 3,700, preparatory 2,303; girls: senior 210, middle 516, junior 1,558, preparatory 893. The proportion per cent. that passed was 63.

The number of schools was 306, the average grant being therefore £164. The highest grant to a single boys' school was £2,212, to the Christian School, North Richmond Street, Dublin; and to a single girls' school £730, to Victoria High School, Londonderry. The permanent administration cost £4,773, the examinations £15,390, and the rewards £9,645. There are interesting tables dealing with each subject in detail, giving the number examined, the number examined in honours, the proportion per cent. of those who passed, and passed with honours, and so on.

Another pamphlet issued this summer by the Intermediate Education Board is the "Reports of the Examiners for 1906," a belated document which could only be useful to teachers if published early in the educational year, say about Christmas time. Year after year these reports come out so late that teachers ignore them. There is no apparent excuse for this lateness, as the results of the examinations are published early in September. The pamphlet covers fifty-two pages, and the reports are of divers lengths. The Latin examiner confines his remarks to half a page, but some of the others (*e.g.*, in Irish and mathematics) cover several pages. The reports, taken as a whole, point to several very general and serious defects in teaching. There is in nearly every report complaint of lack of neatness and order, weakness of punctuation, badness of spelling, and failure in observation even of things which are on the written papers of questions. That these faults are radical is shown by the science reports. The science teaching is experimental and practical, and yet we find the examiners in this subject complaining that the candidates use the laboratory only to verify statements taken from books. They do not observe properly nor trust to their own experiments. Starting with a preconceived idea of what should be the result of an experiment, they stifle the very faculties of observation which the subject is intended to develop. In other words, quite apart from what subjects are taken up, there is clearly a very grave deficiency in teaching methods.

About Easter it seemed fairly certain that the Chief Secretary would do something to improve the finances of the intermediate system by making good with a supplemental grant the falling off of the revenue of the last three years. It is now, however, apparent that this hope will be *delusive*. The Government has stated that no supplementary vote is to be introduced, and Mr. a deputation of primary teachers, introd Redmond, that all that was proposed th education was the £40,000 building gran schools, but that next year he hoped to before Parliament proposals to remedy grievances which he admitted deserved re

WELSH.

The differential treatment of council a school teachers in Merionethshire has nat great deal of comment. The non-provided had their last term's salaries withheld, e holidays, whilst the council school teacher duly paid in good time before the schoo teacher, it is said, in a non-provided insurance policy; the month's grace ex insurance could not be met. Of course, that teachers must be living up to their savings are not a quarter, or even a half of their salary. This is perhaps the wo whole matter of teachers' salaries. The teachers in country schools is so small th from due payment of salaries is not only cruelty. Receiving the wages of artisans each quarter of a year at the end of their When that is the summer quarter bef holidays, and the salaries are not paid e through the holidays, can anyone fail anxiety thus caused, together with the availing themselves of the leisure of the va or other recreation, is not only a persona will entail an educational loss in the lack their work during the ensuing quarter? W into the question of the "justification" of tion of treatment of council and non-teachers in Merioneth, we venture to say ness. It is a blot on the national educati It is said that the National Union o stepped into the breach and has advan salaries. In doing so the National Uni well of the country.

The fifth session of the summer schoo Language Society has been held at Aber were present about 150 students from vari Principality. A large number of the studen by the Welsh educational authorities, an scholarships. The society is now recognise of Education for grant-earning purposes, inspection was paid to some of the meeting by Mr. Thomas Darlington, H.M. Inspec The lecturers were Prof. Edward Anwyl, Edwards, both of Aberystwyth; Prof. John of Bangor; Mr. S. J. Evans, of Llangefni; Gruffydd, of Cardiff.

A report has been presented to the Ca Committee on the teaching of Welsh. T education states that, of 24,428 scholars o 10,099 were to be instructed in Welsh, 13,206 children did not wish their children instruction, whilst the parents of 1,123 exp either way.

We have already noted the movement Sunday School Union to establish classes fo of the Welsh language, to be held durin months in Cardiff, in connection with the

Cardiff. The Union has now asked the educa-
ity to use its influence to have these classes
by the Board of Education as evening schools
ose of earning grants. Members of the Educa-
ittee pointed out if the classes were only
ie children who belonged to the particular
ncerned, that this looked like a religious test.
ttee decided to request the Board of Education
e the classes, provided the classes are made
the public generally.

gard to the allocation of grants for higher
Wales, Mr. McKenna has made the following
n the House of Commons: "When the Welsh
was formed, it became a question, if different
were issued in Wales from those issued in
how much money Wales ought to get out of
ants to secondary schools and pupil teachers.
ion of the grants as between England and
he basis of population would not be a satis-
angement. They had to consider, not only
but also the number of scholars who had to
for. He, therefore, did not take population
and, in the absence of any other guide, he
present year, and perhaps for future years,
to continue the same proportion as had actually
o England and Wales respectively during the
ears. He found, as a fact, that the expendi-
ıles on secondary schools and pupil teachers
of the expenditure in England—the population
vas only something like 1/15th or 1/16th of
gland—and he therefore thought it right to
ıles 1/11th of the money given to England.
ıad her full share of the money, and he trusted
dents of the Board of Education would always
did."

CENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Primaires Illustrées. Par E. Toutey. With an
and Vocabulary by H. Bué. vi+185 pp.
1s.—This is a French school book, the first
s of which are printed with spaces between the
ıd with devices for indicating liaison and mute
is not unnatural, a book which may be well
the French child is less suitable for the English
this is specially noticeable if we observe the
number of words taught. The editor indeed
that to adapt this volume to the needs of
dents "no change whatever has been found
; we hold a different opinion. The French-
cabulary has been carefully compiled; it is
that in some cases the order of words is not
: thus *lieu* to *livre* have inadvertently been
tween *lourdes* and *lucarne*; and *pourtant* is
ace and *poulailler*.

le Troisel. By Mrs. J. G. Frazer. xiii+170 pp.
) 1s. 6d.—This original story is an addition to
cmillan's Primary Series, and is intended to be
Émile et Hélène"; the story occupies the first
ınd is divided into twenty chapters, a facsimile
de Faire Part forming a last chapter of two
responding to these divisions come twenty brief
ted sections on grammar, followed in turn by a
pious exercises. The grammatical part of the
ie work of M. L. Chouville, as also is the reform vocabulary, which excludes elementary words but contains the English equivalents in cases where the explanation in French would only tend to confusion. The story, illustrating many phases of French life, contains plenty of movement, and will certainly induce Mrs. Frazer's "young friends to think that French is *nice*." M. Chouville has judged well the amount of grammar likely to be grasped by the readers, and has framed the exercises so as to come within their scope. The reproduction of the *pâté* in a letter (p. 14) will not be without interest to young pupils.

Rippmann's Picture Vocabulary. French: Second Series; and German: Second Series. 28 pp. (Dent.) 1s. 4d. each.—This second instalment of pictures needs no further praise on our part; our review of the former series expresses adequately our opinion of the present issue. It is well to point out, however, that illustration 196d is designated *chariot*, whereas it should be *charrette*; nor does 98g accurately represent a *chariot*, as the latter has no shafts, but a beam, and is always drawn by two horses or oxen. In certain districts of France a confusion of terms has arisen, but it is not, presumably, the author's purpose to encourage the use of lax expressions.

French Speech and Spelling: A First Guide to French Pronunciation. By S. A. Richards. 63 pp. (Dent.) 8d.—This carefully graduated little book affords ample drill for the acquisition of French speech sounds, both in the phonetic symbols of the Association Phonétique Internationale and in the conventional spelling of the language. A few diagrams have been inserted in the first part to illustrate the position the lips and tongue assume in pronouncing the different vowel sounds and the *gn* sound. Length of vowels, division of syllables, stress in connected speech, elision and liaison are each dealt with in turn, and suitable selections in prose and verse are given for reading and recitation.

Easy Free Composition in French. By L. M. Bull. 63 pp. (Dent.) 1s. 4d.—In connection with these well-selected stories, the questions and exercises—which should arouse the interest of the dullest—are bound to enrich the pupils' vocabulary and to ensure an accuracy and elegance in expression of thought that have hitherto been seldom attainable.

Free Composition and Essay Writing in French. By A. Philibert and A. Pratt. 88 pp. (Dent.) 1s. 4d.—Students who have already worked through "Easy Free Composition" in this series should be able to start on these descriptive essays. The authors' plan is to give a model, and then to supply a vocabulary of connected words and phrases as useful building material for similar exercises appended. Letters which will be of great help in teaching the various forms of courtesy to be employed in different cases come next. Biographies and literary analyses follow, then eighteen detailed plans and forty subjects of essays, and an appendix explaining the difference between the Passé Défini and the Imparfait. This capital little book supplies a distinct want in the present state of modern language teaching. The pupils are led up to a fair idea of the "plan," the all-important point in a French "dissertation"; they should now be encouraged to seek for themselves the plans of the authors they are reading.

Bell's First German Course. By L. B. T. Chaffey. xii+104 pp. (Bell.) 2s.—This First Course consists of fifteen lessons, in which a fairly extensive vocabulary is given. The method shows a compromise between the old and the new, and offers no salient features for comment.

E. E.

The "pages to elucidate pronunciation, though once written, have been cut out, since experience seems to show that pupils do not look at them." Surely this depends on the teacher, and on his opinion of their value. The page that has remained (apparently by an oversight) does not contain much that is helpful. A pupil who is told that for *e* he must have his "tongue point on bottom teeth and arched round palate," and that it is "a close sound = French é," may well be excused if he can make nothing of it. The text is of interest mainly for the public-school boy, particularly if he wants to play tennis with Germans who have not yet adopted the reformed technical terms of the game. The examples of German writing are ugly. The grammar is not carefully introduced. Altogether a book which may be convenient for the author in his classes at Eton, but which cannot be warmly recommended as a class-book for general purposes.

Fulda, Das verlorene Paradies. Edited by P. H. Grummann. xiii+194 pp (Ginn.) 2*s*.—An interesting play, suitable for advanced pupils, who will find all difficulties explained in the notes, and renderings which are generally satisfactory. They will probably make no use of the twenty-six pages of German questions; and the addition of a vocabulary may also be regarded as superfluous in a book of this type.

Classics.

Caesar, Gallic War, Bk. II., xi+19 pp.; *Bk. III.*, xi+18 pp; *Bk. IV.*, ix+22 pp. By Dr. W. H. D. Rouse. *Virgil, Georgics, Bk. I.*, xvi+17 pp.; *Bk. II.*, xvi+18 pp. By S. E. Winbolt. *Cicero De Senectute*, xiii+38 pp. By Dr. J. S. Reid. *Selections from Tibullus and Others*, ix+29 pp. By Dr. J. P. Postgate. (Blackie.) 6*d*. each net.—No schoolboys, and probably few others, realise the trouble in editing these inexpensive and apparently simple Latin texts. The introductions are short, and mostly terse and clear; there are no notes except a few critical remarks on the readings; but the texts themselves are fresh recensions carefully made by some of England's best scholars, while the marking of all long quantities, whether in position or not before two or more consonants, requires extreme care, and is performed with more accuracy in these later than in the earliest texts of the series. When these advantages are to be had for a nominal price, there is no excuse for using badly printed or badly edited Latin texts in schools. By these editions of Caesar, Dr. Rouse has now completed the Gallic War except Bk. VII.; Mr. Winbolt has already completed the Aeneid and Eclogues of Virgil; and Dr. Reid now adds the De Senectute to the De Amicitia. Dr. Postgate's name adds further distinction to this series; his text gives us eleven poems of the first two books of Tibullus, five of the third book published by Lygdamus, Ovid's lament for Tibullus (Amores, III., ix.), and the elegy of Domitius Marsus. The oversights in marking quantities are not many, and are usually obvious, but the following are worth notice: B. G., II., c. 8, § 2, *deiectus* is acc. pl., and the final should be marked long; III., c. 11, § 3 and *passim*, the first *i* of *Aquitania* is long—cp. Tib. I., 7, 3; IV., c. 17, § 8, *derecta materia iniecta* is abl. abs.; Georgics, I., 52, *ac* is long; similarly the first syllable of *nonne* in 56; II., 121, *e* in *tenuia* is short—cp. 180; in 277 *ordinibus* has *ō* and *setius ĕ*; in 288 *o* in *forsitan* is short, and in 423 *i* of *satis* is long. In the De Senectute we should have in § 36 *instīlles*, § 68 *vixit*, § 71 *opprĭmitur*, and in § 79 *nolīte*. In Tibullus, I., 3, 39, and I., 10, 14, is it right to mark the finals of *subiit* and *trahor* as long by nature? The final of *exiguos* (II., 5, 34) is sh writers are contemporaries. Why then shoul forms like *omnīs, admirantīs, partīs*, for the i-stems in Cicero, and *vitēs, omnēs, tristēs*, s the others? And why *magnō opere* in Cicero, *pere* (or, as Dr. Rouse has it, *magnōpere*) in C reading in B. G., III., 12, *bis . . . spatio* ca correct, but there is no critical note, and that § 3 seems certainly wrong. There are some between this text of the De Senectute and edition in the Pitt Press Series. We find here, *adepti* (§ 4) for *adeptam*, and *suasi. sed* fo (§ 14). In Georgic I., 393, *operta* seems a *aperta*; in 457 the MSS. reading *moneat* shoul in II., 22, Scaliger's reading is *quas*, not q and 341 the old readings *amaror* and *terrea*, carded by modern editors, are restored.

Select Epigrams of Martial, VII.–XII. Edi text of Prof. Lindsay by R. T. Bridge and E. xxx+128 pp.+text unpaged. (Clarendon Pres This is a useful selection of epigrams, and on the whole. We should prefer not to hav paraphrase or abstract of each piece, whi harm; but the editors do but follow the f introduction is good. It contains a brief li —or rather a collection of his allusions to hi factory account of his literary qualities, and on Patronus et Cliens, Captator et Orbus, Re Books, with quotations from Martial at th page. The chronology of the books is discu three chief metres of the author. Text and are those of the Oxford Bibliotheca, in whi remembered, is published a school edition The notes are original and generally good; little that would be better away, except abstracts which have been spoken of above. tions may be worth making. On p. xi, *nul n*; xxvii and xxviii, the doubtful final of marked long only, which might mislead the p. 1 of the notes, the aegis is said to be th Zeus originally, whereas it was the cape (of Athena. P. 4: the *laurea* may be illustra boys from De Quincey's "Stage Coach," eloquent picture of the days of the French planation of *pateras* (p. 3) is only intelligibl understood it beforehand. P. 11: *monstra* illustrated by the quotations; the difficult numeral; "*tuūs*" (pp. 12, 81) is wrong lengthened at all, its pronunciation is u *with the pause* it takes the place of a long introduction, notes, and index are also p separate volume at 2*s*. We strongly approve of publishing notes, and would welcome a v to the whole of the Oxford school text of M

T. Lucreti Cari de Rerum Natura. A the Fifth Book, 783–1457. Edited, with Analyses, and Notes, by W. D. Lowe. 6 don Press.) 2*s*.—The text of this selection for its purpose, as having a unity of its ow prefer the schoolboy to buy a full text, do for little more than the price of th making the selection; but the separate pub conveniences. The notes are fairly satisfac fault of their conception is that too much are too many bits of translation (*e.g.*, 787, explanations of simple constructions (838,

example), and much useless information (823 n the other hand, one or two real difficulties are y explained. Thus 844 is hardly right in view ositional nominative with *usus* and *opus*; and lengthening of syllables "by the emphatic 9) is certainly wrong, for some forms, such as justified by ancient quantity, others perhaps aided by the pause-licence. In the introduc- pportunity was missed of explaining the prin- Latin hexameter rhythm (p. 6).

s, I.–III. Translated by G. W. Harris. New ibrary, edited by Dr. Emil Reich. x+226 pp. nenschein.) Cloth, 3*s.* 6*d.*; leather, 4*s.* 6*d.*, is an unfortunate attempt to popularise to make him, as the translator says, "enter- the man in the street." The historian would gnise himself as saying (i. 2) "These were etans. The Hellenes subsequently initiated a le of outrage. . . . (3) It was merely a case ated rape. . . . (24) They told (Arion) to jump ossible expedition into the sea. . . . (60) Men receive with a cheerful heart Pisistratus, whom s Athene has so honoured as to conduct him back to her acropolis. . . . (ii. 22) Any per- person will admit. . . ." The introduction is he translator's difficulties "are legion and vious." Rawlinson's work is, "of course, l scholarly, but archaic." P. Gignet's is "as eful a version as could be expected at the time, f course, in French." He adds, "comparisons " We are glad indeed to learn that "Hero- a distinct sense of humour." He is also like hy medico," Sir Thomas Browne.

the Reading of Classical Poetry. By L. J. viii+68 pp. (Ginn.) 2*s.* 6*d.*—This book is to show how Latin poetry ought to be read so far as it reminds readers of the truth, that s a thing spoken and not a thing printed), we welcome it; that warning is necessary in in America: it seems, however, to be specially America, because (we infer) quantity is much n American Latin work. The principles of e, rules of quantity, and so forth, are very ed, and accurately too: thus the definitions of *arsis* are right (p. 45), while in England these nostly used wrongly. But the explanation is spun unnecessary length. Mr. Richardson's ideas of English verse are not clear; no one could read es on p. 10 properly by his directions, and the "Banks and Braes" (p. 7) is very crude. It ded that the noun *wind* was never pronounced rb *wind* (p. 18); this pronunciation in modern mere affectation. The truth is that the verb pronounced as the noun was, not far from the nd.

History.

History of Surrey. By H. E. Malden. xii+ *School History of Middlesex.* By V. G. Plarr Walton. xii+226 pp. (Methuen.) 1*s.* 6*d.* unately for our country, it is very difficult to hool" or any other histories of any of its It would be possible to write a history of one French provinces, and even easier to write one an principality down to the French Revolution. ntries were sufficiently divided, not merely geographically but historically, to make the history of any one part tellable apart, to a large extent, from that of other parts. But England attained its unity so early, its counties have for so long been for all practical purposes mere arbitrary divisions for administrative purposes, that it is almost as easy to tell the story of one drop of the ocean as to cut out an English county from the main flow of English history. The consequence is that the authors of these two books have the same story to tell. We begin with the Stone Age and end with Victoria, and the peculiarities of each are mainly topographical. Mr. Malden tells of the monasteries dissolved in Surrey, Messrs. Plarr and Walton of those in Middlesex, but the "suppression of the monasteries" is the same for both. We therefore are under the impression that these books are good for the teacher but not quite suitable for the pupil. The teacher should himself be able to localise his English history lessons as he goes along, and the information supplied in these little books will help him to do so, in default of time to consult larger books or to undertake original research. But the books themselves seem addressed to boys and girls, though sometimes the language is a little beyond them. Each has an interesting story, and the work is well done. The illustrations are many and varied, and each is supplied with an index. The title of the second should be "London and Middlesex" rather than, as it stands in the book, "Middlesex, including London," for the greater part of the book is occupied with London; Middlesex is adequately treated in a few pages.

Revision Notes on English History. By F. W. Hadrill. 93 pp. (Methuen.) 1*s.*—It is a pity that schoolmasters who have a good idea to embody in a text-book on any of the subjects they have to teach do not submit their MS. to some specialist in the subject in order that they may have, before they go to press, the opportunity of bringing their information up to date. Here, for example, is a good little book for practical purposes, covering English history from 1066 to 1832, containing chronological analyses, special notes on many points, short biographies, genealogical tables, and a selection of examination questions—in a word, a useful handbook to put in the hands of our pupils—but every here and there lacking in the latest information. The author "would be very glad to receive notice of any inaccuracies which may have escaped detection"; but why did he not ask for them before printing?

The Children of History. By Mary S. Hancock. 142 pp. (Pitman.) 1*s.*—An abundance of good pictures, some of them coloured, a pleasantly written and clearly printed text, six pages of "summaries and meanings"—such is the apparatus to set forth fourteen stories of children in history, ranging from Romulus, Cyrus, Pindar, to Brian of Erin and Olaf of Scandinavia. Quite a charming variation from the ordinary readers.

Geography.

The Ambleside Geography Books. By Charlotte M. Mason. (Kegan Paul and Co., and Parents' Educational Union.) Maps and illustrations.—These are new editions of old books. They were originally published by Stanford as "The London Geographical Readers." It is claimed that they have been thoroughly revised and brought up to date. They are issued in five volumes: vol. i., "Elementary Geography" (1*s.*); vol. ii., "British Empire and the Great Divisions of the Globe" (1*s.* 6*d*); vol. iii., "The Counties of England" (2*s.*); vol. iv., "Europe" (2*s.*); and vol. v., "Asia, Africa, America, and Australasia"

(2s. 6d.). This political division of subjects is just the type many reformers dislike. We have seen the first four books. They are interesting, but spoilt, in our opinion, by many blemishes, which really ought to have been removed had the revision been thoroughly carried out. We will note a few. To begin with, not one boasts an index. The pictures of the earlier volumes (there are none in the later) are very old-fashioned. Many of the maps are most repellent and full of confused and confusing details. The numerous questions inserted are almost entirely of the most antiquated mnemonic type, for Miss Mason thinks that the examiners of to-day still require the same sort of geography that was in vogue twenty-five years ago. As to the several books, vol. i., for children of seven and eight years, is full of "easy verses, illustrative of the various subjects." Shakespeare's "Winter" song is one of them; surely the occupation of greasy Joan and the state of Marian's nose might have been left for a more adult age! Questions are set with answers attached, after the way of Mangnall, and are apparently to be learnt like repetition. Vol. ii. is quite behind the times in the spelling of Indian names. Burma is spoken of as if it were not an intrinsic part of India, and Malacca as if it were the chief Straits Settlement. The map of North America shows "Hooker" (!) as the only mountain in Canada, indicates no latitude and longitude, and has not even dots to locate the few towns; New Orleans, for instance, may be situated at the "N" or the "S" of the word, and they are (by the scale) 500 miles apart. The text opposite this map is as full of mistakes as is the map of Africa a few pages before. Vols. iii. and iv. have much reading and little geography. The "Counties of England" should have been curtailed so as to make the book a geography of the British Isles; "Europe" should not have opened with a two-page disquisition on an exploded myth, viz., the climatic effects of the Gulf Stream. Altogether we are not favourably impressed with Miss Mason's new venture. Moreover, the paper is poor, the type worse, and the setting up of the type worst of all.

A Handbook of the British Colonial Empire. By W. H. Mercer and A. J. Harding. 202 pp. (Waterlow.) 2s. 6d. net.—This is really an excellent handbook. It is full of accurate and up-to-date information, as, indeed, it should be, since its authors are respectively a Crown Agent and a member of the Colonial Office. It consists of two parts: (i) five prefatory chapters on the growth of the colonies, their various constitutions, their administration, legislation, and trade; (ii) seven sections dealing with the history and geography of the colonies in detail. The first part—only about one-sixth of the whole work—is extremely interesting, and clearly and concisely written. We commend especially to the notice of anyone who may wish to obtain rapidly a general idea of the matter and method the short summary of the fiscal question on p. 31, of the political and economic importance of our colonies on pp. 7 and 29, and of the colonial lead in social reforms on p. 26. The chapter on constitutions, too, is a good sample of how what is in the ordinary "geography" a somewhat nebulous subject may be clearly treated and made interesting. The second part is a combined history and geography, and good enough in its way—rather dry in the reading and much taken up with the record of facts, and facts only. This occasionally tends to lapse into mere catalogue writing, and as such is, we think, inferior to the work in part i. On the other hand, it is all carefully done, and everything is brought well up to date, particularly on the *political and historical* sides. Physical geography is, however, weak. In Canada, for instance, we are sorry to notice that Mounts Brown and Hooker still fi highest peaks in the Rockies, and we are sce the influence which the Gulf Stream is said on the Bay of Fundy. Moreover, to speak of the same district as rising and falling 70 ft. the least, an exaggeration. The engineers of th Ship Railway found the extreme range to be the average spring range just over 42 ft. T ever, are little details which may be toned dow editions. The one map in the book is most use large one of the Empire, showing incidentally, very clearly, the principal cables and telegraph features are very prominent: (i) the inter-co colonies and mother country by means of the of Empire"; only five of our possessi Honduras, Tobago, Virgin Islands, Falkland I British New Guinea—lie outside the chart (ii) the great trans-Pacific cable from Victori Brisbane and Auckland *via* Fanning, Fiji a Islands. Alongside this is rightly inserted th counterblast from San Francisco to the Philipp of Hawaii and Guam. Altogether we have fo favourable opinion of the book. It has defe which we have alluded to; there is no index; is used instead of the "United Kingdom"—a point with Scottish readers; details here ar needlessly precise, and will, indeed, necess "full" atlas at hand to make all of them But we think the work is well calculated—as desire in their prefatory note—to encourage of history and reflection on matters of gen It is a book particularly suitable for sixth or forms and special classes.

Mathematics.

Elementary Trigonometry. By Cecil Hawl 310 pp. (Dent.) 4s. without Answers; 4 Answers.—This text-book has been written un viction that practical field-work should, where be undertaken by pupils, and the first eight largely taken up with the elements of surveying tions of instruments. Chapters iv., v., and the sine and cosecant, the cosine and secant, gent and cotangent respectively, the ge tion of the ratios being given in each numerous examples of a practical kind l upon to furnish instances of the use of and to give facility in applying them. reviews the ratios, collects standard formulæ, identities; it also takes up the question of a sector and the limits of $\sin\theta/\theta$ and θ converging to zero. Compound angles ar chapter viii., and again practical problems a evidence. The two remaining chapters are dev part to problems of a practical nature. It will this summary that the book differs considerabl in general use; to many boys we should think will be much more interesting than that usu and those who work through the course with degree of care will have acquired not merely ance with many interesting and important p blems, but a sound knowledge of the elements trigonometry. With the treatment of details in the use of the general definition of the rat outset and in the method of establishing theorem) there will certainly be disagreement of many teachers; there may also be a feel practical side is overdone, and that more drill

formulæ and in the solution of equations than ovides is desirable. But it is to be hoped that nay be given to the general method developed; lone can decide how far it can be carried. In ie book is outside the ordinary category, and of independent thinking.

to Elementary Geometry. With Numerous By John Wellesley Russell. viii+204 pp. Press.) 6*s.*—It is refreshing to find a book on it goes beyond the mere elements, and one may e appearance of a new sequel indicates that the ed parts of elementary geometry are to have a f school life. The selection of theorems here e generally accepted as satisfactory, and the both compact and clear. Possibly room might ound for the discussion of anharmonic ratios, t contains so much that is good and well ex- it would be ungrateful to press too hardly for heartily commend the sequel to the considera- y of teachers, but of authorities who regulate atical studies of the school.

Geometry for Middle Forms. By S. Barnard Child. xviii+420 pp. (Macmillan.) 3*s.* 6*d.*— characteristics of the books on geometry Messrs. Barnard and Child have been referred CHOOL WORLD on more than one occasion. It sufficient to state that the "Geometry for ns" consists of parts i., ii., and iii. of the A New Geometry," with some additional book is well supplied with recent examination

in Concrete Geometry, with Supplementary By D. Sands Wright. vi+84 pp. (Heath.) llection seems to be more suitable to the hat prevail in the United States than to orce in this country, though the book lised in our schools. It consists to a large amples such as are to be found in many of cent text-books of geometry, but considerably on is paid to solid figures than in our text- metry (apart from mensuration). The supple- ussions hardly seem to deserve the prominence ion on the title-page gives; they are usually e, but rarely, if at all, do they contain new

rcises in Algebra for Beginners. By W. S. 34 pp. (Methuen.) With Answers, 1*s.* 9*d.*; vers, 1*s.* 6*d.*—This book, according to the pre- ended to be the working school book of young contains all that is suitable for a preparatory ebra." The examples range from the simplest up to easy quadratic equations; they are re not too hard. and show a considerable is rather surprising that, so far as we have here is no reference to graphs. In Exercise 10 ion $z=0$ is given; in four of the examples z actor of the denominator, and in each case the given. In Exercise 11 the substitution $x=0$ the same error is repeated in two examples, being specially glaring in example 11. These too serious to be passed over without notice.

Algebraic Geometry. By W. M. Baker. ll.) 7*s.* 6*d.* net.—For students who are work- the help of a teacher a key, when judiciously real service; occasionally the hard-pressed teacher may have recourse to the solution of a knotty problem. This key is, so far as a comparatively cursory examination can test it, compact but clear, and will doubtless prove serviceable. It is often interesting to compare different solutions, and a key can yield in this way some profitable recreation.

Science and Technology.

Builders of the Body. By Eustace Miles and Mariella John. 179 pp. (Philip.) 1*s.* 6*d.*—These "lessons on food values" should receive a welcome. Mr. Miles's views on vegetarianism may not be assented to by all readers, but they will be considered with the respect due to an account of personal experience and to the moderation with which they are expounded. The book is, moreover, a sound elementary guide to dietetics in general, and is written in language intelligible to the least scientific of readers. It is illustrated by capital sketches, more or less humorous, which serve to drive home the moral. We notice that the authors follow the multitude in asserting that "oils, starches, and sugar do not build our bodies and repair the waste; they only give energy." Though this is scarcely correct, the error is not, after all, of great consequence in a book intended for general readers. The *Chart of Food Values* (3*s.* 6*d.* net), by the same authors, and published by Messrs. Philip as a companion to "Builders of the Body," displays, in a manner which could scarcely be improved upon, the relative proportions of the various food-elements in, and the nutritive value of, common articles of food. The accompanying handbook is extremely interesting. It gives not only several useful recipes, but also instructions for the calculation of the relative values of various combinations of food. The chart ought to be upon the wall of every cookery school in the country.

Philips' Nature-study Pictures. 36 in.×26 in. (Philip.) 5*s.* each.—Of the two specimen sheets we have received of this new series we can speak with entire approval. They are well printed in natural colours, and are at the same time accurate and pleasing in appearance. The pictures are in three sets. The first of these, "Studies of Plant Life," consists of sixteen sheets, which illustrate a very judicious selection of types, and, it may be mentioned, include members of most of the natural orders prescribed in the Board of Education's elementary botany syllabus. The second set of pictures deals with "Studies of Animal Life," and illustrates, in five sheets, farmyard and garden life, field life, wood or forest life, pond life, and birds of the seashore respectively. Set three provides pictures of types of the principal orders of insects, with various stages in their development. It consists of six sheets. Accompanying each set is a handbook (6*d.* or 1*s.* net) in which the pictures, repeated on a reduced scale, are explained, and descriptions of the organisms given. We have noticed one or two quite minor slips, but for the most part the series of pictures and handbooks are quite trustworthy and to be cordially recommended.

Laboratory and Field Manual of Botany. By J. Y. Bergen and B. M. Davis. viii+257 pp. (Ginn.) 4*s.* 6*d.*—As a guide to general practical work in botany, suitable for intermediate students, this book is, we think, the best which has appeared for some years. Histological methods, though by no means neglected, occupy a place of subsidiary importance in the book. By this means room is found for a fuller treatment than usual of the physiology and general structure of plants, especially in relation to environment—branches of which the special educational value is beginning to be widely recognised. A judiciously selected biblio-

graphy is another welcome feature of a book which ought to attain a wide popularity.

The School Garden. By J. E. Hennesey. 155 pp. (Blackie.) 1s.—Managers and masters of rural schools will find in this book an ideal guide to a branch of activity beset with many pitfalls for the amateur. It is above all things practical, and the obvious outcome of wide experience in the work.

A Second Year's Work with Mother Nature. By Alyce L. Sandford. 203 pp. (Pitman.) 3s. 6d.—Mrs. Sandford's ingenuity in devising "correlation" of lessons would surely amaze anyone but an infant-school teacher. Those engaged in such work, who find their imaginations becoming exhausted, will do well to seek inspiration from this book. As in part i., many of the songs are written and composed by the author. Sir John Cockburn contributes a foreword.

Art.

Apollo; an Illustrated Manual of the History of Art throughout the Ages. By S. Reinach. 350 pp.; 600 illustrations. New edition. (Heinemann.) 6s. net.—M. Reinach's "Story of Art throughout the Ages," which appeared about two years ago, has been revised and augmented, and is being issued by Mr. Heinemann under the above title at a considerably reduced price. The point of view, which embraces the whole history of art, architectural, sculptural, and pictorial, from the prehistoric cave dwellers to the pre-Raphaelite brotherhood and beyond, must necessarily be a bird's-eye view; in spite, however, of the amount of ground to be covered, M. Reinach dwells briefly on each important period or style, and keeps up a running fire of most interesting and enlightening comment or criticism. With its 600 illustrations and a bibliographical appendix to each chapter, "Apollo" is invaluable if only as a book of reference, and should certainly find a place in the library of every educational institute in the kingdom.

The Life and Leaf Set of Drawing and Design Cards. By W. Midgley. Ten Cards. (Chapman and Hall.) 2s. net.—The practical utility of such a series of drawing cards as Mr. Midgley's "Life and Leaf Set" depends to a large extent on the method of their employment. If used in the manner directed by the author, and not for the sole purpose of copying, they will form the basis of an extremely interesting and valuable course of study. The series consists of ten cards (11 in. by 9 in.), containing drawings in silhouette form of birds, animals, insects, and foliage, together with suggestions for their adaptation for purposes of decoration. The teacher in search of novelty or inspiration will find them very welcome.

Modern Kindergarten Methods. By Lilian Elliott. 60 pp.; illustrated. (Charles and Dible.) 2s. net.—Much valuable time has undoubtedly been wasted, and countless luckless infants have been unutterably bored, in the name of "Froebel," by the too literal interpretation of his ideas at the hands of unimaginative and unsympathetic kindergarten teachers. Miss Elliott's book is an earnest endeavour to apply the Froebelian principles to a scheme of "gifts" or "occupations," simply and clearly expounded and liberally illustrated, for very young children. Miss Elliott rightly insists that these "gifts" are not to be regarded merely as a pastime; ". . . All that they can teach, all that they can elicit, must be studied by the teacher if they are to be used as Froebel intended. In a word, the Froebelian *letter* is useless without the Froebelian *spirit*." The study of this little conduce largely to a realisation of this spirit, be safely recommended to the young teache who wishes to gain some insight into Froebe and their application.

Rafia Work. By C. M. Swannell. 48 pp. (Philip.) 2s. net.—Another book which may commended to the kindergarten teache Swannell's admirable treatise on "Rafia W consists of weaving and plaiting with bands or "bast" made from bark fibre. This is tion" which admits of considerable grad difficulty, and lends itself to the manipulati but interesting exercises suitable for infant fi as to the construction of more difficult a patterns. The book is profusely illustrated graphs of mats, tidies, baskets, blotters, an variety of useful articles such as a child wo make, together with clear and precise instruc manufacture.

Practical Scale Drawing. By A. W. Be 250 illustrations. (Browne and Nolan.) unpretentious little volume is crammed full formation and valuable hints on all ma with the manipulation of instruments and and figuring of scale drawings for all pra The chapters on the construction of sc application is particularly lucid; the use of for the graphic representation of baromo variations of temperature, school attendanc forth in a simple and direct manner, and t practical exercises on plotting areas and t method of drawing similar figures as a surveying and similar purposes. The book illustrations; it is a handy size for the poc prove a boon to both the student and the te training, whilst its surprisingly moder neither of them an excuse for being withou

Miscellaneous.

The Psychological Principles of Educati Horne. 430 pp. (Macmillan.) 7s. 6 teacher may succeed without training the cannot succeed without natural gifts. By t mean tact, sympathy with young life, re sense of humour and a buoyant temperan this quotation before him the reader will Horne's pages, he will be rewarded; bu at the back of all. The book deals with th relating to intellectual, emotional, mora education. It places the true teacher on t but from it he can see better into the in mends books; it takes for granted the rea them; it is always bright and hopeful an high trumpet note. But on two points conspiracy of silence; it will not speak ou habits, and it will not speak out on the ideal class. Until writers on education wi Stanley Hall) give their full attention to t and will preach, in and out of season, the cision in these matters all progress depen sowing the sand. You may, with St Paul as a temple of the Holy Ghost; or you ma exquisite mechanism not to be fooled wit not neglect to take one view or the other the second question, you may hold that re

, or six is an ideal number for a class; but hand a book on the theory of education to o has to stand day by day before eighty or n. The class which had the Parable of the ned to them numbered eleven.

Exercises. By H. Rippon-Seymour. 127 pp. is book is a breezy, sensible introduction training, and its preface is admirable. s English in sentiment as regards exercises, to the monotony of the prolonged Swedish non sense in this, as well as in many other ducation, is still a desideratum. The teacher onestly through this volume will be rewarded. measurements (of the normal and most sses) might be supplied by teachers to the ıcation, and published every three years. We done in Germany.

CORRESPONDENCE.

do not hold themselves responsible for the expressed in letters which appear in these As a rule, a letter criticising any article or nted in THE SCHOOL WORLD *will be submitted tributor before publication, so that the criticism may appear together.*

-Products in a School Laboratory.

when "test-tubing" is almost entirely re- eparations in a school course of chemistry, a by-products are formed. These, I believe, are ured down the sink; this seems so wasteful d be interesting to inquire if they cannot be

s may be divided, for convenience, into two those which will be of use in the laboratory ed and those which can be used as material y work. Of the former, some are obviously covering; many of the others are difficult to is it reasonable to expect the schoolmaster, ds already full, to work up these by-products duce the laboratory account? *À propos* of minded of an incident in a recently published e Founders of Chemical Industry," by J. Fen- . 193). Deacon, the discoverer of the process ring chlorine which bears his name, one day Ferdinand Hurter, his chief chemist, in the covering waste carbon bisulphide. "Do you value of bisulphide of carbon?" asked No," replied Hurter, "really I don't." swer to this was characteristic of the man: had better ask, and remember your time is more value to me than a few ounces of carbon; and another time evaporate it in an This seems to show that unless the finished f more value than the time expended on its t is false economy to recover it.

ne, there are other things to be considered; is only worth recovering in a school labora- it is produced in fair quantity; (2) it is in nand; and (3) it can be purified with the of very little time. These conditions— last—are all fulfilled in the case of calcium hen I was assistant-master at Sutton Valence, er preparing carbon dioxide from marble and acid, poured the residues into a large bottle llowed to stand some days in a warm place— either on a coil of pipes or on the top of the steam oven. It is essential that the marble be in excess, for it not only neutralises any free acid, but at the same time precipitates the iron. This impurity, which exists in solution as ferric chloride, is precipitated as ferric hydroxide on standing in contact with the marble. The clear solution is then poured off, and evaporated to dryness when required.

Coming now to the second class of by-products, I wish to point out that many of these—zinc sulphate, copper sulphate, copper nitrate, &c.—afford excellent material for practice in crystallisation. The working-up of a by-product illustrates the uses of crystallisation very well indeed. It also seems less artificial than the usual experiments, in which a boy starts with a solid—say alum—and after making a strong solution allows it to crystallise; some boys, I fear, after obtaining the crystals, feel they have got no further than they were to start with. Boys regard their work from a strictly utilitarian point of view, and unless *they* can see some object in their work are apt to take very little interest in it. Many of the experiments in crystallisation, as I said, seem to *them* objectless; but to purify a by-product, which would otherwise be thrown away, seems something worth doing, and they will work at it with real interest.

Many other by-products, which require something more than crystallisation for their purification, form useful exercises for the upper forms. The purification of calcium chloride, the solution being boiled instead of left to stand some days, is a case in point. The only other instance I will give is manganese chloride.[1] The residues, after preparing chlorine from manganese dioxide and hydrochloric acid, are warmed (in a fume-closet) to decompose the excess of manganese dioxide, and filtered. The filtrate is deep yellow, the pink colour of the manganese chloride being entirely masked by the ferric chloride present. To a portion of this solution—say one-tenth—sodium carbonate is added, the (impure) manganese carbonate being washed on a filter-paper and finally transferred to the main bulk of the solution, which is kept boiling. By this means the iron is precipitated as ferric hydroxide. From time to time a small portion of the solution is tested with a few drops of potassium ferrocyanide solution; at first a blue precipitate is formed; this becomes paler, until finally, when all the iron is precipitated, it is pure white. Such preparations not only afford good practice in manipulation, but enable a boy to realise, what he so often fails to do, that ordinary materials found in nature are not *pure* chemical compounds; and hence compounds prepared from crude materials are always impure.

Silver residues cannot be conveniently treated in a school laboratory. If kept, it is better to sell them when sufficient has been collected; but, considering the small amount of silver salts used in a school laboratory and the low price of silver, it is doubtful if they are worth keeping.

C. H. WRIGHT.

Measuring the Resistance of a Galvanometer (Thomson's Method).

IN this method the deflection of the galvanometer has to be reduced. If this be effected by decreasing the E.M.F. of the battery, the variations in the current, due to alterations of the bridge resistances, will be proportionately small; or if permanent magnets be used to bring the needle back to the neighbourhood of zero, then, according to Glaze-

[1] The method of purifying calcium chloride described above is that given in Emerson Reynolds's "Experimental Chemistry," part iii., with the exception of the addition of "a few drops of solution of bleaching lime," which I have found unnecessary. The purification of manganese chloride is taken from Roscoe and Schorlemmer's "Treatise," vol. ii.

book and Shaw's "Practical Physics," the control field of the galvanometer will become so strong that the instrument will cease to be sensitive.

To overcome the difficulty set up the bridge as usual, but with a fairly strong battery and with the galvanometer rendered as sensitive as possible. Now place a magnet on the axis of the galvanometer coil, and move it about until the needle returns to zero. In this position the magnet will have exactly neutralised the deflecting field due to the current, and the needle again swings freely in its original control field. It is therefore, as sensitive to variations in the current as it is to small currents in the ordinary way.

This modification may be used successfully with a Thomson or a tangent galvanometer. It is equally effective in working by means of Maxwell's method for finding the resistance of a [illegible].

H. S. HELE-SHAW.

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[illegible]

[illegible] Congress in School Hygiene

[illegible]

the special lines of knowledge included in su[illegible] the International Committee has formed a sm[illegible]

This council has all the powers of an ex[illegible] mittee. It can form sub-committees of exper[illegible] inquiries. The usual committee procedure is a table and discuss matters, but this coun[illegible] with the various subjects that arise, sub[illegible] different topics by correspondence, collating and finally making pronouncements in urgent a meeting of the council.

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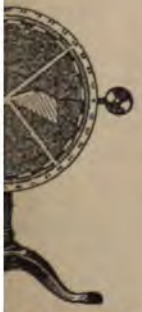

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To face first matter.

thought too slight, and this theory has not obtained the sanction of historians in general.

But a few dates are known. The battle of Deorham (577), which cut off the Welsh of Wales from those of Cornwall, and the battle of Chester (613), which cut them off from those of Strathclyde, are the most important. Topography, the position of forests, marshes, and river valleys, is the basis of what conjectures are now considered most probable as to the course of the Anglo-Saxon conquest.

With the coming of Augustine, the Middle Ages begin for English history, that period of European history regarded by our eighteenth- and early nineteenth-century historians as an age of "ignorance and superstition," from which the philosophy of modern times had delivered Europe. There may be some exaggeration in the reaction from this view, but since the beginning of the Tractarian movement (1830) and the restoration of the Convocations of the English Church in 1852 to at least regular meetings, we have learned to look with different eyes from those of our fathers at the period during which Europe was consciously a Church and England a part of that Church. This is not the place or time, though the temptation is strong, to dwell on the phenomenon of the Church-Empire whose name was Rome, and which had two heads, the Emperor and the Pope. But the constant struggle, conscious from the time of Hildebrand and William I. of England, between the various ecclesiastical and lay institutions of that period, between Pope and King and clergy in each kingdom, to say nothing of parliaments and general councils, has become more prominent in our modern text-books, and is, indeed, the key to the whole history of the time. Specially does it help us to understand the long, monotonous reign of Henry III., that period which stretches from John's "submission" in 1213 to the meeting of the "Mad" Parliament of 1258, and during which the Pope was not merely head of the Church, but also feudal lord of the realm.

Of the five centuries of contest between English, Saxon, and Dane, we have little to say. The term "Bretwalda" is no longer regarded as more than a title given by later writers to whatever king happened to be predominant for a time. The work of conversion is now attributed fairly (except by polemical writers) to both Celtic and Roman Churches. The parochial system grew gradually, and was not the work either of Theodore or of any one man. Care should be taken not to make the reign of Egbert of Wessex too much of a dividing line. There was still lack of unity, especially between north and south, and the division was accentuated by the first Danish conquest. Opinions still differ about Dunstan and his treatment of Edwy. But his character has, on the whole, risen, and there is due appreciation of the monastic revival of his time. On the other hand, Freeman's glorification of the Godwin family has been modified, and Harold is not the pure saint he used to be.

Much advance has been made of recent years in the study of feudalism and of Domesda The results are as yet too chaotic and too t to have place in books written for school but we may say that the old simplicity ha peared. It was a system (if a system a contracts of infinite variety, so that a ma be a villein in respect of one piece of lan freeholder in respect of another. A giver land, too, might be held as a tenancy in eleemosune, and in socage, all at the sa Life was not simple in the Middle Ages.

We return to matters more practical to in directing attention to the work of o greatest mediæval kings, William I., H and Edward I. The details of their activi be found in the best text-books, and we no more than characterise their contributi history of our constitution. William g strong central administration to add to institutions of our Saxon kings; Henry u two in the institution of the Angevin sh Edward gave shape to the developmen institution into the national Parlian history of which henceforth is the cent domestic history. The old fashion of gi few words the "character" of each sovereigns is happily dying out, thoug dead, and it does not seriously matter these improvements were made from "g "bad" motives. Probably the actors revolutions were not so much aware of th ness of the changes they effected as we ar looking back on their work and its resul English constitution has been happily defi series of remedies for grievances, and chequer, the assises, and the "model" P were no more than the most practical overcoming a pressing difficulty. It mu forgotten, too, that each of these kings h cessors who showed them the way. Wi Canute, Henry II. had Henry I., to wh it is now being discovered that we must some of Henry II.'s changes, and Edwa Simon de Montfort.

Simon de Montfort was a Frenchn should his name be pronounced?). It w his friends who first introduced French i documents. All previous ones had been Latin or English. He, too, found a re a pressing want, and called members fr and towns to his party assembly of 126 did not found *the* House of Commons. V if he ever conceived the idea.[1]

The history of the growth of our co may be presented in outline in the follow William I., posing as an English King a successor to Edward the Confessor, m the shire moots and other local instituti these underwent only the change in langu

[1] How much better it would be for us now in India if the st growth of the House of Commons and of its powers had b Calcutta University instead of the Whig notions of our histor by Hallam and Macaulay, which evidently form the stock-i agitators there. They might have learned how many cent government are necessary before a *national* parliament conceived.

ich were the necessary result of adminis-
y Normans more conversant with Con-
than with English customs. To these he
at least developed from previous embryos,
nequer and the Curia Regis, as central
y for taxation, general administration,
tever legislation was required. The rela-
between the Crown and these bodies de-
ntirely on the personal character of the
William II. developed the advantages
osition as national King and feudal lord
arned the dislike of all, and Henry I. could
port for his "usurpation" by granting
and making a beginning in that union
central and local administration which
ed so much further by his Angevin name-
nder the "soft" rule of Stephen all
and Henry II. had to begin again, to
nd improve the work of the Norman
Hence the "assises" of his reign, and
m that was elaborated in connection with
He sent the itinerant justices—members
uria Regis—to preside at extraordinary
of the shire moots for the purposes of
and civil and criminal jurisdiction. The
as their executive officer, and the use of
worn witnesses—was developed for the
of settling disputes, assessing taxation,
senting" criminals. "Personal" taxa-
introduced as an additional source of
to the feudal aids, and thus the
shire moots may be regarded as petty
nts, having at least the embryo of all the
of fuller national Parliaments. The new
as strained by Richard I. for his crusade,
ohn in the stress of struggle against the
powerful monarchs of his time, Innocent
Philip Augustus. The consequence was
ce of the nobles, who alone had suffered
vious kings, and the growing class of
s to force from John the granting of
Carta. During the long stress of Henry
ign, the latter class was growing in
nd intelligence—was not the period that
iars and the Universities?—and after the
the thirteenth century we begin to see
ates" of the Middle Ages, clergy, nobles,
mons, shaping themselves for representa-
he "jury of the realm," the Houses
s and Commons with which we are

ve learned much in recent years of the
between written and unwritten consti-
nd we have been taught that the British
on is unique in this respect. We have
eriods in our history attempted to make
onstitutions. The first period is in that
hat saw the gradual coming into exist-
our national Parliament. The second is
venteenth century, when the relations be-
e Crown and the Parliament were keenly
. There are three mediæval documents:
Carta, the Provisions of Oxford, and
linances. All three are alike in
at if they had succeeded in getting
established, they would have substituted for the national Parliament that was then evolving an aristocratic feudal body as a check on the King. They all perished, the two latter entirely, Magna Carta only in respect of its constitutional clauses, and that within a very short space of time. The importance of even the mutilated Magna Carta that survived the changes of Henry III.'s reign was not discovered until the seventeenth century. *Then* what was important of it was provided with sanctions, Habeas Corpus Act, &c., which made it for the first time really a law that could be enforced. The many promises to observe it prove only how weak it was in the Middle Ages.

There is another mediæval document of constitutional importance about which much confusion still apparently exists. What Edward I. ratified at Ghent in 1297 was the *Confirmatio Cartarum*, a French document with a Latin title which was regarded by the seventeenth-century anti-Royalists as a statute. Another document, often confused with it, is the so-called "Statute" *de tallagio non concedendo*. Dr. Stubbs long ago printed both and pointed out their distinctness, and a comparison of the sixth article of the former, phrase by phrase, with the first article of the latter (an unauthorised and inaccurate report), would be a profitable exercise for our elder pupils. The authentic document has a "saving" clause which much modifies the scope of the charter.

Another subject which has lately come into prominence has been the importance of sea power, and this has affected the history of all wars in which England has been engaged. More important, perhaps, than Crecy or Poitiers, regarded from the military point of view, are the battles of Sluys (1340), Lespagnols-sur-Mer (1350), which gave the command of the sea to the English, and of La Rochelle (1372), in which we lost that command. Raids in France were useless unless we could land where we pleased. Minor legal points in connection with the Hundred Years' War, which have received attention lately, are the occasion of Edward III.'s claim to the French crown (a mere device to please the Flemings) and the discussion about the Salic law. It was only the lawyers of the next generation who imagined that the French barons of 1330–40 quoted any imaginary law of their supposed forefathers to settle the succession to their crown.

The story of the Peasants' revolt has been rewritten; its causes, economic, political, and financial, have been explored. Wat Tyler, as we used to know him, almost disappears, and the insurrection should be compared with the almost contemporary French Jacquerie, and connected with the later revolts against enclosures.

The periods of Lancaster and York have not been much changed in our histories as yet, partly because material is wanting or unexplored. Perhaps some day we shall have something which will relieve the deadly dulness of those

faction fights known as the Wars of the Roses. Meanwhile the discussion turns on the relative importance of the military details, a discussion with which school teachers, under the dread of examinations, have unfortunately nothing to do. The numbers of the armies are generally believed to be exaggerated.

Henry VII.'s reign has been rescued from the Bacon and Hallam traditions. He was not so parsimonious as was supposed. He amassed wealth, it is true, but could spend it when wanted. Morton did not invent the fork; the dilemma was invented by Fox as a reply to the converse proposition put forward by certain clergy who were being asked for taxation.

In the beginning of his constitutional history, Hallam states that there were, in 1485, five "essential checks upon the royal authority," which may be thus summarised: Consent of Parliament is necessary to (1) taxation, (2) legislation; (3) personal freedom and (4) trial by jury are guaranteed; and (5) there is no special protection for State officials. But, immediately after elaborating and explaining the first two, he proceeds to say that "no adequate redress could be procured" for violent acts on the part of State officials, and that juries were intimidated to give verdicts satisfactory to the Government. In the first paragraph, Hallam is a Whig lawyer, pleading for some fellow Whig accused of libel by a dictator like Pitt in, say, 1800, quoting all the statutes and judges' decisions he can lay hands on in the Middle Ages. In the second, he remembers that he is a historian, who must say what did happen, not what ought to have happened. It is his lawyer ability which has given him the epithet "judicious." It is the fact that only by an afterthought is he a historian that makes him so unsatisfactory a guide.

CLASS-ROOM PHONETICS.

By HARDRESS O'GRADY,
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I.

THE OBJECT OF THE ARTICLES.—Many teachers who have gone far in the theory of phonetics find difficulty in applying what they know to be the needs of the class-room. There is a danger of teaching phonetics for the sake of phonetics and not for the good of the language. The difference between studying the subject and getting others to study it is quite as much felt as the fact that the theory and detail dear to the heart of the specialist are not what the pupils in a school require. Moreover, the delivery of lectures and the conduct of a lesson are as wide apart as the poles.

Again, there are in these days of transition from formal method, or from informal lack of it *to the human* and scientific Reform Method, a *great many schoolmistresses* and schoolmasters *who, in addition* to taking a form "in ordinary school subjects," are compelled to te guages, who desire to teach them well, in sympathy with the objects of the Richtung," who have studied phonetic best of their abilities, but who have in th no definitely formulated plan of teach may even in some cases be nervous abo lating one.

Without being able to lay claim to an degree of stupidity I may say that it several years to learn how to *teach* pho as to get accurate results, to interest t and to impress the memory. It is to ot have found similar difficulty that these addressed.

I have given here a minutely detailed lessons. To some they will afford onl hint here or there; to many they sh several hours of laborious preparation. the notes used on the following lines. production of speech is studied; next t of spoken English as the "known"; fr we go on to the unknown sounds of F German, noting in those languages th which we possess before taking those w possess. The lessons will be constantl and exercises given, the class being en to invent new exercises and to make at original observations.

I lay stress on one or two points of a character, and first as to the time to l to phonetics in school. Given that the ment of a good accent is an essential, I as the result of personal experience, tha ten full periods of half an hour or three of an hour should be given to the subj first taken up, and that two period minutes a week should be set aside for during the subsequent years. This is q from the use of the Lauttafel as a cor pronunciation.

It will probably not be possible to school lessons coincide with my divisio amount taken on each occasion will vary master, the school, and the form. I ha course of the lessons made a speciality board work. Good blackboard work is have found in a varied experience of Eng the colonies that most blackboard work muddled, untidy, or indistinct. It bec evil by confusing the learner. In most writing is not sufficiently heavy to draw t tion. Yet blackboard work does much a bad lesson interesting, and to make lesson brilliant.

Before proceeding to the actual le should like to lay stress on the fact th presenting here an elaborated version own class-room notes. I have taught fr notes, and constantly revised and amend I have, of course, made use of every hi by the great phoneticians. It would b sible to acknowledge every hint I hav reading much, I forget often where a cer has come from. But I do lay claim to the

out, methodising, building-up, and ori-
of the scheme as a whole. I will now
he notes themselves.

Lesson I.

itus required.—Either a model of the
rgans or a chart to show clearly and
e position of the organs. A rough work-
el to illustrate the action of the vocal
Large diagram to show the position of
ue in forming the sound given by the
oloured chalks.

a pupil to pronounce a vowel sound, any
und as used, for instance, in a singing
This procedure gives a reasonable
f a pure vowel being given at once. If
owel is not given at the first attempt, go
you get what you want. Do not supply
id yourself. Suppose the sound when
ɑ. Let the whole class pronounce it
them to try to find out what they do to

r to elicit by questions the organs used in
; sound ɑ. Do you use the lips? How
now? If you change the shape of your
d you get the same sound? Do you use
ue? What part of the tongue? Does it
nywhere? Where? What part of it
(Questions to determine the vibration
hords, use of breath, path of breath.)
u make the same sound with your tongue
her position? Without the humming in
oat?
Take a summary on the blackboard of the
sed in producing the sound ɑ. Revert
act observed that difference of position
ifference in sound; get from the class
lusion that each sound is produced by
l only one, position of the respective

raw or hang up a chart of the vocal
pointing out those used in saying ɑ.
ttention to the fact that there are still
rts of the chart which are not used in
ing ɑ. Ask the class to breathe and
hat path the air escapes. Some will say,
gh the nose"; others, "Through the
Ask them whether they can breathe
the mouth or nose at will, and suggest to
man breathing smoke through nose or
Ask how it is done, what enables us to
path of the air. Point out the velum on
kboard or chart. Next ask them to say
t the humming in the throat. Some may
that it is impossible, which will be cor-
xplain that you want them to try to say
it a humming, even if the result is not
: them how they would make a hum-
ithout using the throat, how the wind
humming in telegraph wires. Ask them
ey think there is in the throat to make
nming. Produce the rough working model
ings, and show how the chords relax and
tighten. Give a simple description of the chords. Draw on the board the diagrams from Mr. Dumville's book ("French Pronunciation," &c., Dent, 2*s.* 6*d.*), to show how the chords can be wide apart or close. Ask what the results of these varying distances will be? To prove the truth of the stretching and slackening, put your finger on or under your thyroid cartilage and press down or up, speaking at the same time to show how the chords (and therefore the pitch) are affected.

V. Let the class make an examination of their mouths with hand-glasses.

VI. Tell the class that you want them to help you to make a map of the positions the tongue takes up in different sounds. Draw an exaggerated diagram of the interior of the mouth on the board. Point out that to be accurate you must fix on one part of the tongue and ask them to imagine that a drawing-pin has been driven into the middle of the tongue. Ask them to tell you roughly whereabout the drawing-pin would come in the mouth in saying ɑ. Correct their observation by the Lloyd diagram (enlarged copies of which can be made from Rippmann's "Sounds of Spoken English," Dent) of tongue position of ɑ, and make a mark in, say, light green chalk inside the diagram of the mouth to show the place of the drawing-pin in the tongue.

VII. Ask for some more vowels. If the pupils are North British a pure vowel should be given without much delay. For the most part, however, vowels-plus-vowels or vowels-plus-consonants will be given. Take such sound groups, and ask the class to listen while you say them slowly; then ask them how many sounds there are in each. Say that you want single sounds, not groups of sounds. (I have found this one of the points that want most attention in dealing with English boys.) Take again the sound group ej or ow, and extract the vowel from each. Get the place of these fixed, as in the case of ɑ marking in their places with the colour you intend to use for each. To get the other vowel sounds of i, ɛ, a, ɔ, u, give the class sets of words containing the sounds, such as *marine, bet, far, cot, lagoon,* and have the required sounds extracted, and the tongue positions marked by different coloured dots on the chart of the mouth.

VIII. The class should now be able to point out as the results of observation the angular (I find vowel *tri*angle a misleading term) path of the imaginary drawing-pin in the tongue, and the fact that the tongue recedes and falls, recedes and rises, in the mouth.

IX. Put up a series of words to illustrate the inconsequences of spelling, such lists as *through, plough, cough, hough,* &c., and *I, ay, eye, high.* Ask the class their opinion of spelling as a guide to the sound of a word and *vice versa.* Ask them what would be their idea of a perfect "alphabet." Explain the point and value of phonetic script, and then go over the ground already covered, replacing the coloured chalk marks by the script

for the sounds taught, keeping to the same colours.

X. The final appearance of the diagram will then be as in Fig. 1.

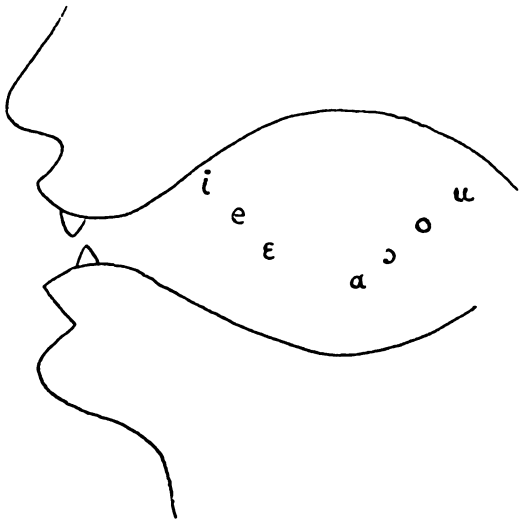

Fig. 1.

To make sure that the script symbols are being remembered, write them down outside the chart in any order, preserving the proper colours, and proceed to drill the class on them.

Use of the Blackboard.—I have found by experience that blackboard notes are most effective when nothing is left on the board except what is absolutely wanted for the summary. Where a summary and a diagram occur side by side it is well to keep one side of the blackboard for the notes and the other for the diagrams. If I may be allowed to suggest it, I think that in all forms of blackboard work we may get useful and brilliant hints as to the catchy presentation of facts from good modern advertisements, more especially the American. The use of coloured chalks, of alternating capitals and small print, of sentences grouped in peculiar positions, and, in a word, of the blackboard as if it were a hoarding used exclusively for the advertisement of only one commodity, will arrest attention and help memory without forcing it.

Lesson II.

Sounds to be taught: i, e, ɛ, a, ɑ, ɔ, o, u.

Apparatus required.—Chart or model of speech organs. Dr. Lloyd's diagrams of tongue positions for vowel sounds.

This lesson may appear to some a mere repetition of the preceding one, in that the sounds to be taught are the same in both. I would point out, therefore, that so far only the tongue positions for those sounds have been given, and that *not* too emphatically, and that the revision of *Lesson I. with the* additions contained in this *lesson will give the* class a sound understanding of the production of these vowels, to se basis for the less definite English vowe to be taught in the third lesson.

I. Recall again to the memory of the cl by questions or by statement, that few s English are pure vowel sounds. Ask for a pure vowel sounds. Take ɑ again and pl its proper position in the chart of the mout give the ɑ sound. Ask the class to give tongue position of this. Help them to accurate. Then face the class and tell them your lips when you pronounce ɑ and ɛ re Get an accurate observation, and note on opposite the coloured chalk symbols of the

II. Next, standing sideways, pronounce and tell the class to observe the angle of Note the differences on the blackboard by drawn in the respective colours of these tw Treating ɔ in the same way, get the des *narrow* and *wide* sounds.

The next step is from ɑ to ɛ to e,
and from ɑ to ɔ to o.
This shows further narrowing.
Finally the step from e to i
and from o to u
shows the greatest narrowing.

III. Hang up the Lloyd diagrams in a order of tongue movement, so as to en idea of a definite path; then arrive by c at the fact that in all vowels the *air* pa through the *mouth*, and that the chords that the sounds, therefore, are obtaine air being "moulded" by the differen nesses of the mouth, differences produc positions of the tongue.

IV. Write up a series of words to illust sound taught, each series to appear c the particular sound it contains and il

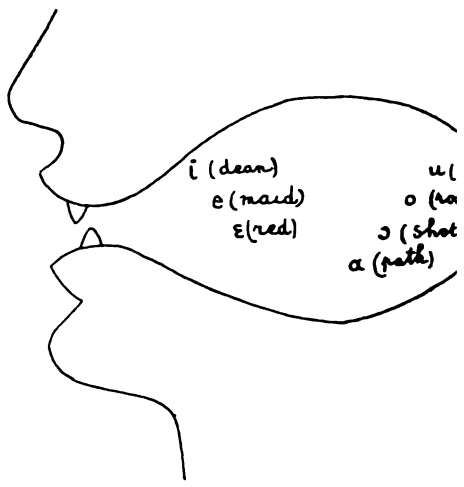

Fig. 2.

and to be rubbed out before the next put up. The lists of words should be as much as possible by the class.

V. Write up the script symbols for th

ı any order, and make the class read
ın any order individually and in chorus,
ɔn absolute accuracy, and, if necessary,
ough the production again. Give the
loured) to various members of the class,
ıem to write down sounds at your dicta-

ɔARD WORK.—As you take each sound
son write it in its proper position in the
ɔf the mouth, together with a word in
: sound occurs. The blackboard will
ɔear as in Fig. 2.
ese sounds, with illustrating words, one
ıight be written again on the blackboard
·espective colours. To distinguish the
nd wide, narrowest and widest, some
:e as this might be used: WIDEST, wide,
ıRROWEST; or a grotesque head might be
ı each group to show the varying opening
of the mouth.

LESSON III.

'us required.—Chart of speech organs;
grams for the tongue positions of i, ɛ,
u.

ɔN.—Revise Lesson II. by questions, and
chart of the interior of the mouth as
finally in Lesson II., together with the
ɔf open and closed sounds.

to be taught in this lesson: æ, a, ʌ and

sk what sound there is in words like *bat*,
ard against the possible North British pro-
of æ as a by saying these words your-
ıl times.) Place this æ sound by ex-
by contrasting it with other sounds already
The class should be able to place it between
without much difficulty. When placed,
ıstrating word against it.
Ask for the vowel sound in *but, much.*
y give the sound group juw; to these
:xplanation must be made that juw, ow,
not single sounds, but combinations of
Place the sound ʌ in the chart, proceed-
he case of æ.
Ask the class to give the vowel sound in the
llable of *butter, mother.* Place it by experi-
Note.—In the script of the Association pho-
ıternationale the symbol ə is made to do
ıe last sound in the English *mother*, as well as
st sound in French *le*, and German *Dame.*
rough experiments with my own speech
people's have confirmed my opinion that
h and the English sounds are not the same,
vowel sound in *le* and *Dame* being pro-
with the tip of the tongue slightly more
ı the mouth than when pronouncing the
l sound in English *bother, mother.* This
ı a needless detail, but I have found by
: that in teaching English phonetics first,
ıg with the sound ə as that of the last sound
&c., many of my pupils when they came to
read the symbol ə in French phonetics have had a strong inclination to make the sound approximate to a, thereby bringing confusion into the genders *le* and *la.* The similarity in form would also appear to be an argument in favour of a better differentiating of ə and a. The confusion may, of course, have been the result of dull or confused teaching on my part. I took special care to be as clear as I could, however.) Finish the treatment of this sound as in preceding cases.

IV. a. Proceed as in the case of æ, giving a word in which the sound occurs, &c.

V. ı. Obtain this sound experimentally by pronouncing i as taught and known, and then drawing back the tongue very slightly. Get the class to supply words in which the sound occurs. Place in the chart. Treat as in the case of other sounds.

VI. U. Treat as in the case of ı.

GENERAL.—Use the Lloyd diagrams to show where the tongue is in the various sounds given. Practise the sounds taught as written in the chart on the blackboard.

Write up the script for these sounds in any order, and make the class or individuals read them off. Special colours should be given to these sound symbols.

Give the chalk to various members of the class, and let them write the sound symbols of the sounds you pronounce for them.

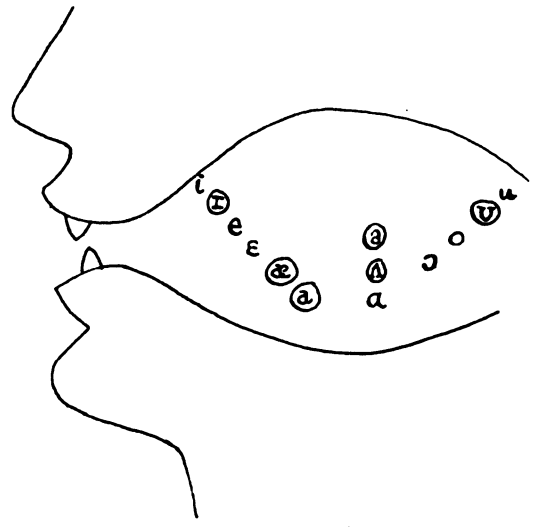

FIG. 3.

BLACKBOARD WORK.—Chart of the mouth with the script symbols of the vowels taught. The sounds new in this lesson might be surrounded by a circle, as in Fig. 3.

Sounds	Words	Sounds	Words
i	dean	ɔ	shot
ɪ	bit	o	rose
e	maid	ʊ	foot
ɛ	red	u	lagoon
æ	cat	ʌ	but
a	town	ə	sir
ɑ	path		

THE SELECTION OF LITERATURE FOR STUDY IN THE SECONDARY SCHOOL.

By William Boyd, M.A., B.Sc.
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In selecting books for literary study, the teacher has to take into consideration two points of view. On the one hand, the judgment of the adult world as to the books that everyone ought to know defines broadly the limits within which choice must be made. There is a certain agreement among students of literature about the works entitled to rank as the classics of our tongue, and it is expected, rightly enough, that the more important of these should be brought within the scholars' ken some time during the school course. On the other hand, there are certain interests, as well as limitations of interests, on the part of the pupils, which make some books more profitable for study than others. It is obvious that the teacher of literature can only get the best work out of his class by taking this fact into account. If the general order of sentiment and thought that prevails in a book is much above the level of the pupil's mind, there can be only one result: instead of bringing the boy or the girl up to the level of the literature, the study of it will, in all probability, help to make reading in general distasteful.

Even then, if we grant that the adult judgment is entitled to consideration in the selection of books for school study, we must make their power to appeal to the youthful mind the final test of their suitability. If a book is not "interesting"—meaning by that, that it is either already related or can be brought into relation to some interest of the pupils—it is of no educational value, and its study is worse than useless. It has been too long taken for granted that what interests grown-up people ought to interest boys and girls. But the youth seems now to have come to his kingdom, and there is a general recognition that his thoughts and his concerns are different from those of his elders. The obvious conclusion from this is that the reading imposed on him for purposes of study should be determined not by *a priori* views of what a man ought to know, but by reference to the needs of the growing mind.

Here the question at once arises: What are the special characteristics of the adolescent mind? What are the interests, either now present or shaping themselves, to make their appearance in the near future? The answer is by no means easy to get; but we are not left altogether without some notion of it. The child-study movement, thought yet in its infancy, has some facts about the growth of mind to put at the disposal of the teacher. Meagre as these are, they are full of suggestion as to those interests of youth, on which with proper teaching the acquired taste for literature can be grafted. Further, the teacher, with a little child-study on his own account, can help himself to an answer by finding out the kind of books his pupils read when left to their own devices. It is going too far to say with one American writer, who has made a careful st children's reading, that "when 95 per cent boys prefer adventure, or 75 per cent. girls prefer love stories, that is what tl going to read." There are more ways c fying a mental want than one, and it teacher's business to find out the best wa before he can do so, he must know w want is. In this matter of reading, su spontaneous interests of the pupils giv valuable guidance which the teacher w foolish to ignore.

Let us consider first the general course lescent growth. Here the central fact is the incidence of which about the age o initiates a grand transformation of body a In school life, the change usually becomes about sixteen, and nowhere more marke in literary taste and appreciation. For ou purpose, therefore, we may consider tl immediately before and after sixteen as tinct phases.

In the first phase, we note that concur the rapid increase in height and weight, the most obvious indication of the a process in the two or three years before there are not a few signs that the interes boy or girl are beginning to approximate of the adult. Reference will be made to this length when we come to speak of the reading of the boy or the girl at this ag the teacher of literature, however, the o ing fact is not this approximation to adult thinking, but the change in mental tone shown in a quickened appreciation of r effects. It is this that underlies the ne for music about twelve in girls and thi boys, and that appears a year later in an in desire for the rhythmic movements of dan marching. Though in its early forms a s crude phase of mind, like the fondness f colours and loud sounds that appears a same age, it is, so to speak, the raw ma all literary taste; for the emotional rhythm in it is the basal experience out of wh prose and poetry have taken their ris whatever the *matter* of the literature pu the scholar at the period from twelve t or sixteen, care ought to be taken that prose and poetry there should be a well rhythm. So far as my experience goes, literature that the thirteen-year-old can b like is of this kind. With proper teachi is nothing to prevent a junior class coming declamatory prose, or ballad and kindred such as that of Scott and Macaulay, or ev resounding blank verse like "Sohrab and R It should be added that the teacher's a bring out the feeling effects in his readi important factor in winning this appreciat

There is a great increase in emotional at puberty, but as the physical changes lowed by great mental changes, the n emotions spend themselves in the creatio enthusiasms and interests, and the rhythm

mes less important. This is the age when sthetic and ethical ideals from which ori- all that is great and noble in literature dominant elements in personal conscious- Accordingly, if the great books of the past elp the growing soul to bring its inchoate into forms worthy of a rational being, st be chosen with wisdom and discrimina- d taught at the proper season. The ques- gain one of right order. Which phase of comes first? It is not easy to generalise; there are considerable variations in in- cases. But, speaking broadly, the earliest ar seems to be the feeling for nature. ever, flowers and clouds and mountains s are seen as things of beauty, and it ds a worthy interpreter to make the whole house beautiful. Happy the teacher ifts and knowledge fit him for the task of the poetry of nature live again in the souls pils! About the same time, or it may be later, the new sex activities struggle out into mind, and become part of the spirit rthwith, the romantic love, mystery of s to the pubescent, becomes full of mean- vast regions of poetry unfold their secrets. literature rightly selected can anticipate pare for experience. The age of the first nding of love is also the age of ethical ng, which expresses itself sometimes in conversion, and more frequently in a ousness of purpose. This is a pre-condi- understanding our graver poets, our and our Wordsworths, themselves men of seriousness that had something of per- dolescence in it. Last of all, some two ter, when the youth is about eighteen, es place a great intellectual advance, in ent of the earlier æsthetic and moral , that opens to him the greatest things in e, the literature of philosophy and poetic y. After that, experience may extend nding, but there is nothing in our lan- hich cannot be brought in some measure he scope of the youth of generous heart d capacity.

we have spoken about the adolescent nent in general terms; but the teacher ll the better if he can find out by personal the individual bent of mind of his pupils. re certain broad interests common to all there are others of a more local kind, due fluence of home and district. The better her knows both, the more satisfactory will rescription of reading. In the first place, be worth his while to make himself ac- with the results of similar inquiries that en made at various times, both in this and in America;[1] he will then know what for. I have found two methods of use in ry of this kind. The simplest and most ting was to get the older pupils to become graphical about their reading, past and present. Girls in particular are often apt psychologists, and can disentagle with considerable success their likes and dislikes. This method is most successful with the best pupils. For this reason, it needs to be supplemented by finding out what the more ordinary boys and girls think about their reading when it is going on. This can be most easily done either by prescribing reading from a comprehensive list of books, as part of the class-work, or, better still, by managing a school library and keeping careful note of the books that go out most and least frequently. If his experience is like mine, the teacher will probably learn some unexpected facts about the likes and dislikes of boys and girls in the matter of reading.[1]

Partly by way of illustration, partly because it has some bearing on what comes after, I may note briefly the results of such an inquiry made by myself. The reading interest of boys, I found, becomes keen for the first time at twelve or thirteen, and the books that then appeal are tales of adventure: the heroes in biography and fiction are the men who *do* things. This is the age of the penny dreadful, which, after all, is not a very bad form of reading in the eyes of one who sees in it only the natural reaction from the monotony of the actual, and who knows how to displace it by better reading of a like kind that takes away the reader to scenes of action at a romantic distance from his own experience. About fourteen, a new phase appears. The interest in the records of energetic life is still maintained, but the heroes are found nearer home than the Indian or the pirate. This is the age when the detective story begins to appeal to certain boys, and the school story which idealises even more familiar conditions becomes interesting.[2] About sixteen, the boy begins to broaden out in his likings, and, while still retaining his fondness for adventure stories, is ready to admit adult forms of reading to a place among his interests. The reading of girls is in striking contrast with that of boys at two or three points. At an age when their brothers are either not reading at all or are deep in pirate lore, the girls are busy with sentimental books, in which tales of love or piety are predominant. Happily the rising flood of the new life at puberty carries them back to a healthier point of view; and about fourteen or fifteen their reading often takes a new turn more in keeping with their years. Stories about schoolgirls which do not appeal earlier are now read—a clear indication that they are escaping from unreflecting absorption in themselves and are idealising their own kind of life. Some girls show the reaction from the excessive femininity of the earlier years by a fondness for boys' stories. But in a year or two there is a return to adult

mple, there is an interesting summary of American investiga- Stanley Hall's "Adolescence," vol. ii., p. 475 *seq.*

[1] As an interesting example, I may mention the fact that, contrary to my own expectations and the general opinion of adults, I found a singular unanimity among my boy friends in a dislike for biography. I placed a tempting volume on the life of Nansen within easy sight on the shelves of a library to which some forty boys and girls had access: and throughout a whole year it was never taken out.

[2] The stories of R. M. Ballantyne are excellent for the boy of thirteen or fourteen; those of Mr. Henty are appreciated more a year or two later, when the boy becomes interested in boys as subjects of fiction.

interests, usually more complete than in the case of the boy, and the reading is for the most part adult in character.

Having reviewed the outstanding characteristics of the adolescent mind in so far as they concern the teacher of literature, we may now make an attempt to draw up a list of books for study in the secondary school on the lines of the previous discussion. Are there any general principles to guide us in our selection? I suggest as a guiding rule that most of the books to be studied should be chosen from the work of the romantic writers. It is not altogether a fanciful parallelism to see in the ages of romantic writing a national mood akin to that of the adolescent. Whether we consider the age of Elizabeth, with its breezy, adventurous life, or the more reflective period in which Wordsworth is the great figure, we find the restless intensity of spirit that marks adolescence; and the result is the same in both cases. There is the same weariness of ordinary ways, the same desire to hear of life removed from the present to a romantic distance in far-off lands or far back times; and when this restlessness is driven inward and provokes reflection, there is the same turning from the world of men to find nature sympathetic. If then it be granted that the selection of literature should be guided by the interests of the pupil, we may expect to find in the romantic writers abundant material for literary study.[1]

For the purpose of drawing up a list of suitable books for study we may divide the secondary-school period into three stages: (1) From twelve to fourteen; (2) from fourteen to sixteen; and (3) from sixteen upward.

(1) Prose.—R. L. Stevenson: "Treasure Island," "Kidnapped"; Conan Doyle: "The White Company," "Micah Clarke"; Addison: "The De Coverley Papers" and other selected essays; Malory: Selections.

Poetry.—Scott: "Lady of the Lake," "The Lay of the Last Minstrel" (long descriptions of scenery better omitted); Macaulay: "Lays," &c.; Goldsmith: "The Deserted Village"; Longfellow: "Evangeline"; Coleridge: "The Ancient Mariner"; Shakespeare: "Julius Cæsar," "The Merchant of Venice."

(2) Prose.—Scott: "Ivanhoe," "Rob Roy"; Dickens: "David Copperfield"; "English Essays" (World's Classics Series); Lamb: "Essays of Elia" (selected);[1] Macaulay (selections[2] rather than complete essays); Ruskin: "Sesame and Lilies" (for girls).

Poetry.—Byron: "Childe Harold's Pilgrimage"; Wordsworth: Selected Poems; Gray; Cowper; Milton: Shorter Poems; Tennyson: "Idylls of the King"; Shakespeare: "The Tempest," "As You Like it."

(3) For pupils over sixteen, the books ought to be grouped in periods. For ex: class might profitably go over the chief p prose-writers of the age of Wordswor attempt to view the romantic moveme whole in doing so. Partly for purposes parison, partly because a school course it would be incomplete, there ought to b to the study list one of Shakespeare' tragedies, preferably "Macbeth." Or, good year's reading could be got out of Shakespeare, Milton, and Bacon, wit Wordsworth or Tennyson to supplemen represent a more modern phase of literatur ably the teacher's own preferences ought for most at this stage; for only in so far a fill literature with personal feeling can h succeed as a teacher of older pupils.

RECENT CONTRIBUTIONS TO THE OF CHEMICAL CHANGE.

By W. A. Davis, B.Sc. (Lond.),
Demonstrator in Chemistry, Central Technica London.

III.—The Problems of Combusti (*continued*).

In the last article (The School World 1907) it was shown that the burning o gen involved much more than is e: in the equation

$$2H_2 + O_2 = 2H_2O,$$

the nature of the change occurring b cussed at some length. In the present a changes which take place when a hyd such as methane is burnt in an ordir flame, or when alcohol is consumed in lamp, will be considered.

Faraday taught that in such cases of tion the hydrogen exercises a greater a for oxygen than carbon, so that if air b in insufficient quantity, some of the ca remain unburnt and appear as smoke. that hydrogen is liberated when certai carbons are exploded with a quantity o insufficient for their complete combus Kersten, on the other hand, in 1861, to that, before any portion of the hydrogen all the carbon is oxidised to carbon mono that then the excess of oxygen divid between the carbon monoxide and h This view gained support, thirty yea wards, from the ingenious experim Smithells and Ingle on the structure of flames, and from the results of Lean a who showed[2] that when ethylene is fired

[1] It is possible that some may argue that just because the weaknesses of adolescence and of romanticism are the same, the more exact work of the classical writers ought to be read as a corrective. The question is really a fundamental one for the philosophy of education and too big to be discussed in a footnote. I think that there is enough truth in the criticism to make it worth while to introduce the classical writers in the last years of the school course after the taste for good reading has been established; but even then I would keep them subordinate to the romantic poets and novelists

[2] The selections published by Arnold (*2d.*) are good. Almost all the selections of the same series are suitable for this stage.

[1] Say, Wordsworth, Coleridge, Byron, Shelley, Scott, and L ing the reading list given in Wyatt's excellent "Tutorial English Literature," or using such selections as those given in Poets," or Arnold's selections from the poets and prose-writers.

[2] In addition to the papers named in the last article the follc referred to: Smithells and Ingle, Trans. Chem. Soc., 1892, Lean and Bone, *ibid.*, 873; Bone and Cain, Trans., 1897, Wheeler, Trans., 1902, 535; 1903, 1074; 1904. 693; Bone a Proc., 1904. 127; Trans., 1906, 660 and 1614; Bone and Stock 1904, 693; Bone and Smith, Trans. 1905, 910; Bone and A 1905, 1232; 1906, 652. Armstrong, Trans., 1903, 1088.

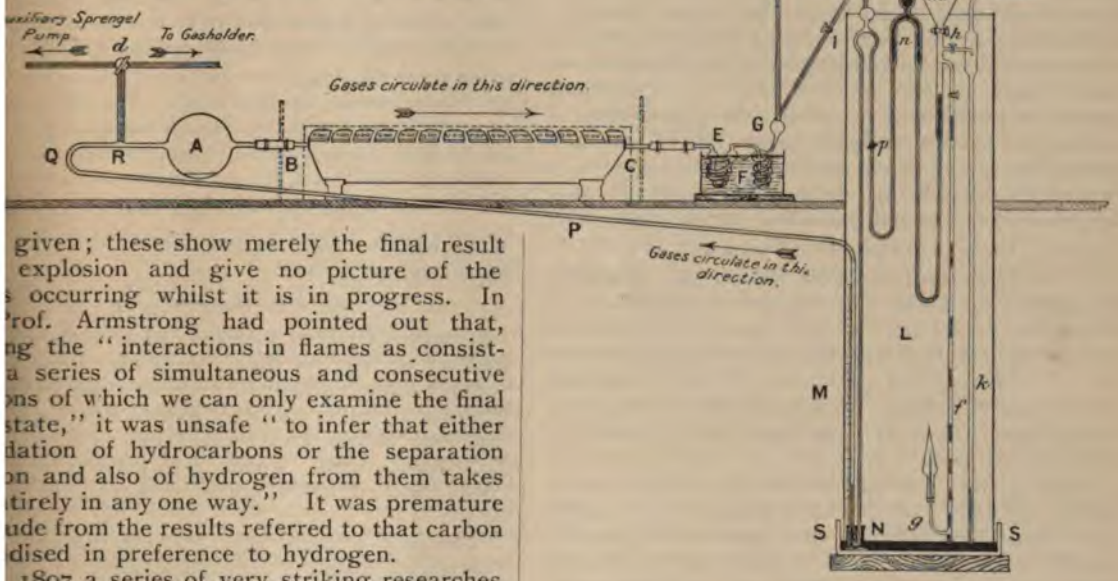
lume of oxygen the *result* of the interaction expressed approximately by the equation

$$C_2H_4+O_2=2CO+2H_2.$$

n, however, ethylene is exploded with an its own volume of oxygen, although the occurring is mainly that expressed by the n given, the saturated hydrocarbon e is also formed, together with some ne, a small quantity of solid carbon being ed. In 1897 Bone and Cain showed that ne, on explosion with less than its own of oxygen, also gave carbon monoxide drogen, in accordance with the equation

$$C_2H_2+O_2=2CO+H_2,$$

cess of acetylene being resolved into its s by the shock of the explosion, solid again being formed. Whilst there was bt in these experiments as to the nature products formed in each case, it was ly unlikely that the actual mechanism simple as that expressed in the equations



given; these show merely the final result explosion and give no picture of the occurring whilst it is in progress. In Prof. Armstrong had pointed out that, ng the "interactions in flames as consist- a series of simultaneous and consecutive ons of which we can only examine the final state," it was unsafe "to infer that either dation of hydrocarbons or the separation on and also of hydrogen from them takes tirely in any one way." It was premature ude from the results referred to that carbon dised in preference to hydrogen.

1897 a series of very striking researches incomplete combustion of hydrocarbons n made by Prof. Bone in conjunction with the results of which show that, in com- oxygen is *gradually* introduced into the rbon molecule precisely in the same way when wet oxidising agents are used, and principle there is practically no distinction slow combustion and the high tempera- plosive changes occurring in a flame. It that the oxidation of a hydrocarbon such ane occurs in a series of stages, each ng of *hydroxylation*, brought about in the anner as the oxidation of hydrogen itself, influence of oxygen and water *conjointly*, ained in the second article of this series. e gives initially methyl alcohol, $CH_3{\cdot}OH$,

$$\begin{matrix}H\\H\\H\end{matrix}\!\!>\!C + OH_2 + O_2 = \begin{matrix}OH\\H\\H\end{matrix}\!\!>\!C + H_2O_2,$$

further oxidation (or hydroxylation) giving rise to

$\begin{matrix}OH\\OH\\H\\H\end{matrix}\!\!>\!C$	$\begin{matrix}OH\\OH\\OH\\H\end{matrix}\!\!>\!C$	$\begin{matrix}OH\\OH\\OH\\OH\end{matrix}\!\!>\!C$
Methanediol (=formaldehyde+water)	Methanetriol (=formic acid+water)	Methanetetrol (=carbonic acid+water).

The first experiments were made by Bone and Wheeler by heating mixtures of methane and oxygen in glass bulbs during prolonged periods at temperatures between 300° and 400° C.; unlike the explosion of methane with oxygen which liberated hydrogen, this treatment gave rise to carbon monoxide and water, no hydrogen being formed. The results at first seemed to point to a *simultaneous* oxidation of carbon and hydrogen as expressed by the equation

$$2CH_4+3O_2=2CO+4H_2O,$$

but subsequently very different results were obtained when an arrangement was devised by means of which the mixture of methane and oxygen could be circulated through a Jena glass combustion tube heated at about 450°, filled with fragments of ignited porous porcelain; any liquid products formed were condensed by suitable cooling apparatus and in this way were prevented to a considerable extent from undergoing further oxidation. The apparatus used is shown in the figure. The glass globe A served as a reservoir for the circulating gases: it contained a few c.c. of water, so that the gases circulating were always moist. BC is the glass tube heated in a furnace; F and G, glass worms cooled by water to condense liquid products; M, a mercury pump so arranged as to cause a constant circulation of the gases, the gas pumped off being returned at N to the system ABC by means of a glass connecting tube, P.

Samples of gas could be removed for analysis

at any moment by means of an auxiliary Sprengel pump. By means of this arrangement it was possible to show that the water condensed in F and G contained a considerable quantity of formaldehyde, H·CHO; in one experiment 22 per cent. of the methane burnt was accounted for in this way, the formaldehyde being produced by the decomposition of methanediol originating in the manner explained above. A large proportion of the gaseous product consisted of carbon dioxide, comparatively little carbon monoxide being produced. There is little doubt that the carbon dioxide arose from the formation of methanetetrol, $C(OH)_4$, this substance being resolved into carbon dioxide and water. The formation of methyl alcohol, which was stated above to be the primary product of the oxidation of methane, could not be directly demonstrated owing to the fact that it undergoes oxidation under the conditions used more readily than methane itself; but subsequent experiments, which showed the possibility of oxidising ethane to ethyl alcohol, made its production at the commencement of the change a practical certainty.

The fact that formaldehyde is produced at an early stage in the slow oxidation of methane makes it possible to explain the formation of carbon monoxide and hydrogen when an equimolecular mixture of methane and oxygen is exploded. On being heated strongly formaldehyde is decomposed according to the equation

$$CH_2O = CO + H_2.$$

The liberation of hydrogen, which was formerly considered to show that oxygen combines with carbon in preference to hydrogen, is, in reality, merely the result of the thermal decomposition of one of the primary products of the oxidation. The actual behaviour of formaldehyde, on being heated, was found by Bone and Smith entirely to confirm this view.

Leaving the combustion of the simple hydrocarbon methane, we are in a position to consider that of the next member of the series of paraffins —namely, ethane. Here matters are somewhat more complicated, but—and the remark holds true of other hydrocarbons, such as ethylene and acetylene—the general principle of oxidation which has already been stated—that oxidation is primarily hydroxylation—enables the general course of the action to be followed.

$$\underset{\text{Ethane}}{CH_3\cdot CH_3} \rightarrow \underset{\text{Ethyl alcohol}}{CH_3\cdot CH_2\cdot OH} \rightarrow \underset{\text{Ethanediol}}{CH_3\cdot CH(OH)_2} \rightarrow \underset{\text{Acetaldehyde.}}{CH_3\cdot CHO} + H_2O$$

Ethyl alcohol is the primary product, but being more susceptible to oxidation than ethane itself it is rapidly converted into ethanediol, which is resolved into acetaldehyde and water. As combustion proceeds, part of the acetaldehyde is decomposed by heat into methane and carbon monoxide,

$$CH_3\cdot CHO = CH_4 + CO,$$

whilst the remainder is further oxidised to form probably glycollic aldehyde,

$$CH_3\cdot CHO \rightarrow OH\cdot CH_2\cdot CHO,$$

which then breaks down into formaldehyde decomposition products carbon monoxide hydrogen:

$$CH_2(OH)\cdot CHO \rightarrow 2CH_2O \rightarrow 2CO + 2H_2.$$

Some of the formaldehyde undergoes oxidation, giving ultimately carbon dioxide is seen that at an early stage the ethane resolved into methane or derivatives of methane the slow combustion of which has already dealt with. The foregoing series of changes also applicable to explain the processes occurring in the flame of a spirit lamp ordinary alcohol: in this case, as in that of the parent hydrocarbon, a complex product obtained, consisting of carbon dioxide, monoxide, methane, hydrogen, acetaldehyde aldehyde and steam, in proportions which widely according to the conditions.

The behaviour on combustion of hydrocarbons more complex than ethane—whether of the paraffin or other series—is doubtless similar that of ethane, but purely thermal changes play a more important part. When combustion is once started the more complex hydrocarbons are resolved by heat into simple hydrocarbon molecules prior to oxidation. Paraffins are resolved into a paraffin containing half the number of carbon atoms present in the original carbon, thus:

$$C_{2n}H_{4n+2} = C_nH_{2n+2} + C_nH_{2n};$$

and olefines into a lower paraffin and the corresponding acetylene:

$$C_{2n}H_{4n} = C_nH_{2n+2} + C_nH_{2n-2}.$$

Carbon is the final result in such processes pushed to the extreme. A similar series of ruptive changes probably takes place during burning of other organic substances such as fats and waxes, and we are thus brought to the point from which we started—the conception of the changes occurring in a flame.

The most striking fact established by researches briefly summarised above is the comparative simplicity of the actual processes occurring during combustion; the *results* appear complicated because several changes occur side by side or successively with extreme rapidity, each change in itself is of a simple character. Thus it has been shown that the oxidation of methane at 300–400° instead of being a single molecular process expressed by the equation

$$2CH_4 + 3O_2 = 2CO + 4H_2O,$$

and necessitating the simultaneous coalescence of five different molecules, is in reality a series of changes occurring in stages, each of which involves a system of two or three molecules only. The extraordinary rapidity with which the successive changes occur, as demonstrated by the study of the phenomena of explosion waves, is perhaps the most surprising feature in connection with these phenomena; but in the present place it is impossible to do more than make a passing reference to this side of the question.

TEACHERS' PENSIONS.[1]

By Fred Charles, B.A.
Strand School, London.

III.

ILE the larger schools find difficulty in providing money for pensions or retirement allowances, the smaller schools, while cannot be expected to do anything. The ifficulty is, of course, want of money; bstacles, which are certainly not insuper- e the movement of men from school to often from one district to another, and nstant disappearance from the profession, r leaving a school, the governing body of as been paying one-half of his insurance n, would, if presented with the policy, eat difficulty in paying the increased pre- and to surrender the policy would mean able loss of very hard-earned savings.

04 a special sub-committee of the Joint nce of the Incorporated Associations of sters and Assistant-masters drew up a which was afterwards adopted by the con- and by both associations. The committee

considered a number of schemes in respect of ciples and details. The scheme of the Welsh oard commends itself, not only because it applies hole of Wales and is administered by a central but also because of the manner in which con- to the fund are regulated and graduated.[2] A lan for the whole of England would, in the f your committee, best meet the needs and re- s of secondary teachers in this country; and, scheme on these or similar lines must ultimately d as the only satisfactory solution of a very roblem. It does not appear probable, for divers that such adoption is likely to take place at r in the near future. In the meantime, how- l education authorities (both county councils ugh councils) should be urged to establish f a somewhat similar character. . . . The com- lieves that the best course at present would be authority to devise its own plan in view of the eds of the district. Where, however, this is not committee is prepared to recommend the adop- ch proposals as are now being made by high- rance companies. . . .

the committee desires to put forward as of any scheme which is adopted:

duated contributions by masters.

tributions of at least equal amount by govern- or local authorities.

(c) A retiring age of sixty, with an option to an assistant-master of retiring on reaching the age of fifty-five and upwards up to sixty, and an option to the head-master (with the permission of the governing body) to defer the retirement of the assistant-master to any age not exceeding sixty-five.

Note.—The age of sixty is, in the opinion of the committee, the most fitting age for retirement, but in many cases it may be necessary to fix a later limit in order to prevent the scheme becoming too burdensome to the parties involved.

(d) In the event of a teacher retiring before the limiting age, his contributions should in all cases be returned to him, and where his services have extended over several years, there should be in addition a reasonable rate of interest and some small share, depending upon the length of his service, in the profits or bonuses.

(e) In the case of a "bad life," the risk should be shared between the master and the other contributory or contributories (not being masters) to the fund. (This might be done on the principle of a sinking-fund policy, or in some other similar way.)

These paragraphs are cited at length because the report has the sanction of the two bodies mainly concerned and best able to gauge the effect of offering pensions to both head- and assistant-masters.

Other suggestions have been put forward by individuals, and have received more or less support. But few have been tried owing to lack of money. The same serious want has prevented any advantage being taken of the permissive clauses inserted in the schemes of many schools for girls. Of these I have not sufficient knowledge to offer any summary of the arrangements for pensions and retiring allowances. I know only of arrangements of easy terms granted by insurance companies.

To return to the other suggestions, some of which seem worthy of serious consideration. The pensions should be attached to the masterships; if the scheme is worked by an outside company, that is, by a company other than the school governors, the premium should be paid, partly by the governing body of the school and partly by the incumbent by deduction from salary; it would be better that the salary quoted be net, after allowance has been made for the insurance premium.

The amount of the pension should depend on the salary, say three-quarters of the last salary. In the same way with the junior masterships; the salary being less, the retiring allowance would be less, and consequently there would still be the same desire for promotion. So with heads of departments and well-defined masterships, in which slight rearrangement of work or staff would make no difference. The ordinary masterships could well be arranged on exactly similar lines by means of a salary scale like those now being adopted by the county councils and other governing bodies.

Another suggestion which overcomes the difficulty of want of uniformity and diminishes the money difficulty, together with a modification of it, is the last that will be noticed. A uniform

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nd article appeared in The School World for August, 1907.
tions of Teachers.—The contributions of teachers shall be the following scale

eater than	£100,	£200,	£300,	£400,	£500,
ter than	£100,	£200,	£300,	£400,	£500.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
..	2½	2½	3	3½	4	4½
..	2½	3	3½	4	4½	5
..	3	3½	4	4½	5	5½
er	3½	4	4½	5	5½	6

his scale the age must be understood to be the age at the date contribution to the pension fund; the salary, however, is the at the date of each successive contribution.
ons of Governing Bodies.—The contributions of the county odies shall be on a scale 60 per cent. higher than the scale for

scheme should be applied to all schools connected with the Board of Education. The most original feature of this scheme is that the assistant-master, the governing body of the school, and the Board of Education should pay equal shares of the premium; the scheme should be managed by the Board; an assistant-master leaving a school before he has earned a pension should receive his own contributions with interest, while the other contributions revert to the fund. The pension should depend on length of service and on salary.

As uniformity within certain limits is necessary, no scheme which has not the sanction and aid of the central authority can hope to succeed. Without the aid of public money no scheme can be worked effectively, and the one and only power capable of inaugurating a satisfactory pension scheme is therefore the Government.

THE EQUIPMENT OF GEOGRAPHICAL LABORATORIES.[1]

By A. E. L. Hudson, B.A. (Oxon.),
The County School, Pontypridd.

II.

IT will perhaps not always be possible for all the geographical work of a large school to be done in the laboratory; and that part which can be transferred with the least inconvenience to ordinary class-rooms will be the most elementary part. To this end boxes of apparatus may be arranged, each of which will serve to illustrate the teaching of some definite topic. Boxes about 18 by 15 by 9 inches—very nearly the size of the boxes in which condensed milk tins are packed, which boxes may, indeed, be used, *faute de mieux* —may be fitted with projecting handles and with a strip of wood under each end. The handles enable the boxes to be carried about from room to room, and the strips underneath are of such a length and so placed as to fit closely into the mouth of a similar box below. The boxes form a neat pile, and a lid for the top one keeps out dust. Such boxes might contain:

(1) Models made with rubber balls, knitting needles, corks, and black, white, and red paint, and fixed on black wooden bases, to illustrate the circles of the sphere.

(2) A similar set arranged to show day and night, with a sheet metal or card attachment, or preferably a separate model, to show the relation between the hour of the day and the position of the sun.

(3) A set for the seasons, with inclined axis.

(4) Set of globes, such as Philips' 1*s.* 6*d.* Graphic globes, variously split, graduated and mounted, to follow up the same subjects.

(5) Sets to illustrate the phases of the moon and the tides.

Each of the above sets should be supplied with a dull black screen for use as a background, and with a suitably shaded burner for connection to the gas supply of the room in which it is to be used.

All mounts and non-significant parts sh painted black.

Series of specimens illustrative of some or classification—*e.g.*:

(6) The water-cycle and its work. The s detached block, weathered block, boulder, sea-sand, mud, sea-salt, chalk. Models o valleys and sea-deposits in illustration.

(7) Rock specimens to show the more characteristics of sedimentary and igneous

(8) Sets of small specimens of minerals an for observation, description, and compari individual pupils.

For more advanced work the "series-l of the museum will be suitable.

The shelf mentioned in the first of these as being fixed outside a window facing ne is intended to hold a fixed globe, a directio like those placed at view-points in Con tourist resorts, a quadrant for observing tl dian altitude of the sun, and a simple gnor

The fixed globe has its axis parallel w of the earth, and the radius running to the observation set in the vertical; it is tl always similarly situated, with regard to t to the real earth, and by consequence s illuminated; in order to have the boundarie illumination fairly visible it is found necessa the shelf, &c., be painted a dull black, to excessive reflection on to the shaded parts globe differs from that described by Prof. C in the August issue of The School Wo being permanently fixed and in possessing means of adjustment for latitude nor n meridian: the former is not necessary for globe; the latter it is proposed to add, but a form as to be not only movable but rem the idea being to present the natural condi simply as possible. The difficulty of pr from the weather is overcome by placing tl under the kind of glass shade which is protect wax flowers.

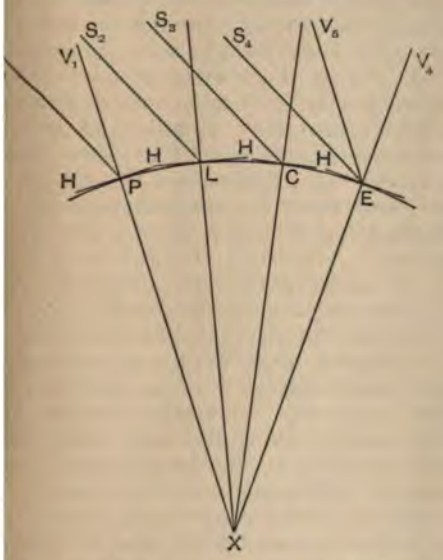
The gnomon is 10 cm. high, and stan slate surface; measurements of the shado from its foot are made by members of th and given to the whole class to record and

The true and magnetic meridians are by red and black arrows respectively on walls of the school buildings; they interse a mark to which the plumb-line of the th is set. The finding of the exact latitude an tude of this mark forms a very good exe accuracy for seniors, latitude being obtai the use of the artificial horizon, and longit transferring Greenwich time by stop-watc the nearest time-signal. Another method survey and measurement on the Ordnanc The latest edition of the 25-inch map do contain the new playground, several new ings belonging to the school, or any of tl roads or houses in its immediate neighbou these will therefore be drawn in from actual and measurements.

An attempt was made to arrange a se simultaneous observations of the sun's

[1] *The first article appeared in* The School World *for August, 1907.*

n during the month of June, 1907, by on the same meridian. The attempt for two reasons: a beginning was made cottish schools on the meridian of Ponty- but the time of year proved inconvenient; second place, the exceptional weather of mmer made it impossible to get a single servation in Pontypridd during the month; ar it is hoped to arrange with schools in rgh, Carlisle, Liverpool, and perhaps other The reasoning to be applied to these ob- ns is by no means beyond the powers of ligent boy or girl of fourteen; in order that sses may, after observing the altitudes mmunicating their figures for the month, to prove the roundness of the earth and sure its size roughly, the only mathematical es required are the facts that the circum- of a circle subtends at its centre an angle , and that parallel straight lines make ngles with a third straight line which they



, L, C, E be points on a meridian of the n order from south to north, and PS_1, LS_2, S_4 lines running from them to the sun, and re parallel, few boys will fail to understand being the south point of each horizon, un's altitude differs at the different places, the angles HPS_1, HLS_2, HCS_3, HES_4 the horizons cannot be parallel; further, they make angles increasing or decreasing ly in one direction, the local horizons must ray regularly from the end one of the

n, if the altitude of the sun at P = S_1PH, E = S_4EH, then the respective zenith dis- are S_1PV_1 and S_4EV_4. But by drawing rallel to PV_1 it is easy to show that the ce of zenith distances (or of altitudes) = = PXE; *i.e.*, is equal to the angular dis- part of the two places at the earth's centre.

e this to be $a°$, then its arc is $\frac{a}{360}$ of the earth's circumference, but the actual distance, as measured by the class on maps (Bartholomew's ½-inch for preference), is so many miles; hence calculate the length of the circumference.

Given a month of ordinary June weather, it will surely be that when the results of the observations are exchanged at the end, some days will be found on which there has been clear sky all along the line; and the members of the classes may have the pleasure of making the whole of the observations and calculations for themselves with the one exception of the measurement of the distance between the places of observation, which they take from other people's survey.

These observations will show the roundness of the earth in the meridional direction; to show it in longitude is not so easy; perhaps the most striking illustration is to arrange for a telegram to be sent from India or Australia, if one has friends in any suitable place, in such a way that it apparently arrives before the time of its despatch. The discussion of this circumstance and the attempts to puzzle out its cause will lead up to the fact that times and meridians follow one on the other round the globe.

The fact that the earth is not merely a globe, but a rotating globe, is most easily demonstrated by sight during a lesson of at least an hour's duration on a clear night; for the imagination, if carefully directed, finds little difficulty in picturing the real motion, at a time when moving points are visible over the *whole* sky; with the sun alone, it is more difficult. A bare hill-top with a wide clear view is the ideal place for this lesson. A model of the axis and equatorial plane and nothing else, placed so as to be illuminated by the sun during the day, and in a position to be compared with the starry sky at night, will be found useful; the axis should be tubular and directed to the Pole, and the whole should be mounted on a post about five feet high. It is to be hoped that instrument makers will soon provide us with a light and fairly accurate model of a theodolite for school use, so made that it can be inclined for use as an equatorial telescope. A real theodolite is, of course, very valuable for meridian observations.

The rotation may, however, well be shown experimentally in the laboratory in a lesson of the ordinary length by means of Foucault's pendulum or the gyroscope, the plane of the pendulum's swing or the axis of the gyroscope being arranged so as to include the sun or the moon. The pendulum will, of course, move equably only at the pole of the earth, but for this purpose the mere fact of the earth's moving under it is sufficient.

It is perhaps too much to expect that such phenomena as the aurora shall be illustrated by vacuum tubes excited by coils and batteries specially belonging to the geographical laboratory, or that the condensation of alcohol vapour under rapidly reduced pressure which is visible in a quickly exhausted bell-jar should call for the provision of an air-pump for the purpose, but these are experiments that may come late or not at all in a modern school science course, and it

should be possible to borrow the apparatus required for them from the physical laboratory.

The relief models now on the market suffer in many cases from the adoption of a vertical scale differing greatly (and often irregularly) from the horizontal one, and from the consequent representation of, say, a hill like Snowdon as a kind of slender stalagmite, utterly unlike its real form. Models with this defect of exaggeration of vertical scale are certainly of use in elementary teaching, but their usefulness vanishes when they are examined in detail. Models of comparatively large regions must be simplified so as to become almost diagrammatic, if useful relations of scale are to be preserved.

More useful will be a model of the school district or some neighbouring one showing fair relief, made on equal vertical and horizontal scales. This may be constructed in many ways, but the following one gives good results. Three-ply drawing boards (about $\frac{5}{8}$ inch thick) are taken, and each board is allowed to represent a height of 100 or 200 feet. The vertical scale being thus determined, the horizontal scale is calculated, and a contour drawing taken from the 1-inch or the 6-inch Ordnance Map is enlarged or reduced to the scale, as the case may be. Graphed copies of the drawing are made, at least to the number of the altitude-bands to be represented, and on each copy one band—say those between 0—100 feet, 100—200 feet, &c.—is shaded to indicate which slope is to be expressed by the edges of each board. Each sheet of paper is cut out round the outer edge of this contour-band, and is pasted on a board as a pattern, and the board is cut out round the lower contour with a fret saw. Then the shaded band, which is at the edge of the shaped board, is pared away with gouge, chisel, and spokeshave to give the slope between the two contours. The board now has a large lower surface, bounded by the larger contour, and a smaller upper surface, bounded by the smaller and higher contour, and edges that fall away all round from the higher to the lower. When all the boards have been treated in the same way, the whole model will, on being built up, give an orographical representation of the region included. The paring away of the slopes should be done with constant reference to the map, and care should be taken to render sub-features and valley-forms correctly. Vertical pegs rising from the base-board, but not piercing through the upper layers, will keep the parts of the model in place. They should have their position (under the highest points of the hills) exactly shown on the graphed drawing, and will then be rightly placed at all levels. The boards may now be painted to correspond with the scale of colour for altitude adopted in the atlas used in the school. This will probably be done in shades of green, buff, and brown, or some of these; water may be added in blue, railways and political boundaries in red, towns, &c. (with or without names), in black, and roads *in dark* brown. If it is desired, a vertical section *may be made* through the whole model, having the layers coloured for altitude, with the of white verticals from the base-line to t where each contour reaches the surface.

If a difficulty is found in carving the the board into slopes, a fixed model may by filling up the steps with plasticine, wetted with gum-water, and then makin in plaster of Paris. Plasticine of various may be used alone, especially for g models, being rolled into layers, either thick all through or thinning out at th with a pastry-cook's rolling-pin. A sha should be used for section-making, and t of keeping the modelling tools wet wit oil, or spirit should be tried, according to the material is to be plastered down smoo putty or sharply carved. Very beautifu of geological features in coloured woo be obtained, but these are expensive, a the disadvantage of not having been ma in the presence of the pupils.

At least one coloured contoured mod be capable of being completely subm water. The best arrangement is a tan pipe at or near the bottom of one side, it can be *quietly* and exactly filled to an level by connecting it with the benc supply by means of a rubber tube. Or should also be treated as a "solid ge object, and have its projections painte triple blackboard, under, behind, and at of it.

For relief or geological models of la gions, such as the Weald, the S. Wa field, or the Pennines, a somewhat sim may be adopted, using thick paper as the Orographical models may be built up of the "Nature" mounting papers photographers; naturally such maps much simplification, but all essential fea be shown. When the layers are pasted and dried—preferably on a glass base paper below—outstanding peaks, town daries, railways, &c., can be painted o models, while only giving the location an shape of mountain masses and plains, least be free from grotesque exaggerat will certainly not be less realistic than toured maps to which the pupils are acc and which the models will serve to expla

Geological maps on the same plan may very useful for purposes of explanation, component parts will require some car cutting out and fitting together. Where tion is lost to sight by passing under formation, it is only to be shown as goi it for a short distance. This will serve keep the thickness of the model right. emphasise the fact that we know but little lies at even a short distance below the and can only infer the presence and po buried strata from their dip and their s at the surface.

In the case of a model of the W Weald Clay will be represented by a h

piece of paper, in the centre of which a lower piece to stand for the Hastings his lower piece passes only a little way e former, and has a small piece under the f it to represent the uplift which forms st Range. The Weald Clay again passes way under the scarp-edge of the Green- nd they under the Chalk, each horseshoe in opening a little wider than the inner er one next to it. In some such manner ession and relation of the formations may ented, without conveying any ludicrously as.

D LOCAL EXAMINATIONS, 1907.

FOR TEACHERS FROM THE EXAMINERS' REPORTS.

IMINARY.—The examiners in *Arith- etic* report that decimals again proved a rious stumbling-block to many. Among questions, comparatively few candidates od the measurement of areas. Half an ractical measurement with a foot rule of carpet, walls, &c., in a room, would have ite simple what proved to be far the most question in the paper.

andidates answering the questions on *St.* did not, as a rule, confine their answers s recorded by St. Matthew. The spelling r names, too, was often weak.

answers to the questions on *English* period A (1066–1399), the weakest point geography; in those on period B (1399– ie examiner says that dates should be more , and also titles of kings: *e.g.*, Edward Edward IV., and Henry IV. for Henry e common mistakes.

case of period D (1714–1815) there was an niversal tendency to answer the more questions by giving bare tables of names or events without connection or explana- metimes even without any attention to gical order. In many cases the history ently been learned without much use of an

candidates taking *Geography* lost marks eading questions, or wasted time by an- questions which were alternative to each Some of the answers, wholly or partly it, appeared to have been written down mory. The maps as a rule were correct ly.

ain fault in *French* was that candidates w the subjects of their prepared books at a possible sense for the French words. swers to purely grammatical questions, ten displaying a real appreciation of the be explained, were in the main less satis-

ost noticeable point in *Algebra* was that r indeed of the candidates, judging from ers, understood how to prove an identity: many of those who attempted the question at all treated it as merely an equation to be solved, and naturally failed.

Many cases of failure in *Geometry* were due to the question not being carefully read, with the result that some proposition not asked for was proved. In many cases the figures were well drawn, but sometimes the pencils used were so soft that the lines ran together and were not clear.

The knowledge displayed in the *Botany* answers to the questions on plant physiology was not so great as might be wished. There was a disinclination in the elementary *Heat* papers to give *reasons* for the statements made and to draw logical conclusions from the observations quoted.

JUNIOR.—Reporting on the *Arithmetic* papers, the examiners point out that in the addition of mixed fractions the working was frequently complicated by reduction to improper fractions and by the use of the product of the denominators, instead of the L.C.M., as the common denominator. In the use of the unitary method in questions involving compound proportion much advantage was often lost by not delaying the multiplying out of the factors to the last moment. The answers to a question requiring the length of the side of a square field containing $2\frac{1}{40}$ acres revealed considerable confusion between the units of length and area. The phrase "lineal acre" occurred frequently. The necessity of clearly pointing the distinction between capital and income was illustrated by a question on Consols and income tax, a very large proportion of those attempting the question being of the opinion that a person pays income tax on the face value of his holding in a stock.

The examiner in *English History* (1066–1399) urges that students must be taught to write answers in their own words. As before, much energy has been wasted in efforts to reproduce from memory note-book summaries. There is also general inability to deal properly with questions on the policy or character of the monarchs of the period; the tendency in these cases being to give a list of events in the reign.

Of the papers submitted in *English History* (1603–1714) it is stated that the central features of the period, the character of the religious struggle, the real points at issue between the Stuarts and their Parliaments, the position of England with regard to the rest of Europe in the seventeenth century, were not sufficiently insisted on; but small points of detail, generally differing at different centres, had evidently been "got up" with great care. For example, pupils who were inclined to confuse James II. and Charles II. knew the date and the provisions of the Navigation Acts. It is essential, if history is to be taught with advantage, that it should be taught, even to young pupils, with a greater sense of proportion.

Of the work in *Composition* the report says: The paraphrasing is far from satisfactory. Though a certain number of the candidates have done it

creditably, the majority have in the main failed to understand the meaning of the passage set.

The weakest point in the paper on one of Stevenson's books was the attempt to describe the personal qualities of leading characters in the book. This usually resulted in a series of disjointed statements. There were a great many mistakes in spelling, even of names which were printed in the question paper.

The papers on *Shakespeare* (*As You Like it*) as a whole showed a great deal of knowledge, though it was often "ill-inhabited." The purely narrative questions were well answered, but the candidates did not sufficiently distinguish between narration and description. They also need closer instruction as to what is meant by context and explanation, and more attention should be given to the elements of metre. There was a welcome absence of padding, the answers being usually concise and expressed in simple, direct language.

Throughout the "A" paper in *Geography* the candidates exhibited a want of exactness and great incapacity to apply the knowledge they possessed. The questions did not appear to have been read at all carefully; much excellent but utterly irrelevant matter was frequently introduced. The maps on the whole were very badly done, and the sketch-maps illustrating the answers were poor. The knowledge of physical geography and its terminology were both very defective.

The inability of many of the candidates to locate important places on the map indicated, the report states, the need of teachers insisting more on pupils pointing out places during class lessons. There is also abundant evidence of the lack of sufficient training and practice in map drawing from memory.

The knowledge of *French* accidence was on the whole creditable, with one notable exception; the question on verbs being badly done throughout, that on the imperative especially so. The sentences revealed a great weakness in elementary syntax. Far too little attention seemed to have been paid to the order of words. The majority of candidates took the "unseen" passages. Their translation was in a few instances very good, but most of them found difficulty in rendering the few really idiomatic impressions that occurred. The passages from the set books were well translated, but the candidates as a rule showed little knowledge of the subject-matter.

Very few candidates taking *Algebra* really understood how to prove an equality between two algebraic expressions. The common method was to begin by assuming the identity, and to arrive at the result that $o=o$. The transformation of one expression into the other was rarely effected. In working the problem set, practically no candidate *explained* his statement, with the consequence that in very many cases marks were lost though the correct result was given, because it was quite impossible to see how the statement was arrived at.

There was much looseness of language in the *Geometry* answers, as exemplified by speaking of the point of intersection of two straight the point in which they "touch." Other are—a circle "touching" the points which it passes, "producing" a point, bisector" of a line (when the perp bisector was intended). There was more ness than usual shown in misreading qu *e.g.*, proving Euclid I. 26 when I. 6 was

Judging from the answers in *Mensur* examiner remarks that the successful us arithms does not seem to have been acqu it is rarely understood that it is desirabl logarithms employed in a calculation s written in vertical columns and always same number of decimal places. It was that several candidates at certain centres the radius of a circle to be exactly one-si circumference. In ordinary arithmetica is important that greater attention shou to the position of the decimal point, an operation of cancelling should be perfo greater judgment and neatness. It realised that contracted methods, rig formed, are consistent with a proper approximation. Those candidates who methods frequently failed to observe the conditions.

There were many untidy papers in *E Experimental Science*, with the records ings and observations crowded together, plete working out of the result bein Further, it is to be remembered that has to be judged simply from what is on the paper, and, up to certain limits, this journal of work done is kept the b its character be estimated.

There were great differences in the work submitted in *Practical Chemist written accounts* of work done and result were very unsatisfactory. It was very decide about the merit of work when th account of it was carelessly done. In s experiments were described and c omitted, while others gave the bare c without the experiments which led to clusions.

The most noticeable defects in *Heat* w

(*a*) Want of knowledge of elementary such as the difference between "*heat*" a *perature.*"

(*b*) A loose use of such terms as "*hea* "*light*," with reference to density.

(*c*) Insufficient attention to quite el laboratory experiments; candidates h been shown experiments of a most refined needing complex apparatus.

SENIOR.—In working the simpler qu *Arithmetic* many candidates displayed a knowledge of decimals. This was espe parent in a case of reduction of metres A large number also were ignorant of mentary facts as the number of yards or of centimetres in a metre. The req the answer should be expressed in a way was frequently ignored. The ma

seemed unable to carry out a process ing accurately through several steps. hem, after beginning correctly, made a before the end.

nting on the papers in *English History*), the examiners remark that there was ny cases a tendency to discursiveness, ulted in candidates spending much time on one question; in some cases, too, seemed to suppose that a great quantity matter was the object to be attained. In e more general questions this was speci- able, candidates making generalisations nstancing any facts upon which the tions were based. Again, there were of papers in which candidates seemed at a catch phrase was sufficient answer ion. On the whole it is clear from the at the results depend enormously upon ating power of the teacher.

ish Composition the essay was on the sfactorily free from blunders of grammar g, though not many of the candidates l the use of any stops other than the d full stop. There were a good many ns which were childish for a Senior , on the other hand, a few of the exer- extremely good, and several displayed le knowledge. The exercises were de- ss discursive than in past years. The e, on the other hand, was in the great f cases a conspicuous failure. The can- rely grasped the argument of the pass- paraphrased before beginning to write, esult that in many cases the paraphrase nonsense, and syntax was totally dis-

ish Grammar rash guesses and vague were common, especially in the "criti- rammatical notes" offered on certain In very many cases the spelling and n were extremely poor, and no attention aid to punctuation.

tes as a rule were deficient in knowledge t of *Shakespeare* (*Twelfth Night*). In ce, only a minority of candidates could hey ought to have done passages and om the play. Contexts were not well Many candidates treated the larger ques- as Shakespeare's skill in construction ely with no or insufficient illustrations ferences to the play. Apparently there oo much getting up of introductions to ooks about Shakespeare, and not enough ith enjoyment the work of Shakespeare Perhaps because of this the description er was not very well done. Allusions xt were well understood, but many ere evidently reproduced from notes heart. On the other hand, there were didates whose work reached a high

as an entire failure to answer the con- ion on *Shakespeare* (*Coriolanus*), and rs to the other questions betrayed the same weakness—a lack of knowledge of the text of the play. Questions *about* the play were fairly well answered, but they rarely gave evidence of the first-hand acquaintance with the text which alone can give them any value.

The general level of the work in *Literature* was very low. The knowledge possessed by many of the candidates consisted of meagre collections of facts, in the selection of which no power of proportion was displayed. Candidates frequently revealed their ignorance of the authors about whom they were writing; and a first-hand acquaintance with the works of writers would have prevented many blunders. In questions which demanded a generalisation on the whole period, candidates rarely attempted anything more than a mere catalogue of names and dates.

In the piece set for translation into *French*, there were many mistakes, both from insufficient vocabulary and from a confusion between French and English constructions. In the answers to the grammar questions the weakness lay principally in the examples given by the candidates, which were often written regardless of concord and other requirements of syntax. The weakest part of the advanced paper was the free composition, which was taken by four candidates out of every five, and only too frequently resolved itself into a mere repetition of very few words strung together without regard for either style or grammar.

Arithmetical blunders, particularly in clearing expressions of fractions, were frequent in the *Algebra* answers. Factorisation, when applied to finding the H.C.F. of two expressions, was often done incorrectly. Many mistakes might be avoided by candidates knowing how to test their results. The use of the formula for solving quadratic equations was responsible for many errors; many candidates applied it unsuccessfully to the solution of a quadratic of which one root was zero. Very few candidates were able to prove the formula, generally stating it without proof; as was also done with the formula for the sum of an arithmetic progression. The work in permutations and combinations showed some improvement on that of last year, but was very far from satisfactory. There is still an obvious need for more common sense and fewer formulæ.

In *Practical Chemistry*, by far the greater number of candidates who attempted the analysis found elements which were not present in the substance supplied. Many of the mistakes were due to ignorance of the nature of the reaction on which the analysis is based, and many to carelessness, when the method employed was correct.

Some very good work was sent up in *Sound, Light, and Heat*, and candidates in most cases showed a good practical acquaintance with the subject-matter. At this stage one naturally expects a correct statement of the law of refraction, but fully fifty per cent. of the candidates failed to answer correctly the question on this subject. The fact that quantitative results are to be deduced from these laws should be emphasised.

ANCIENT ROMAN LEGENDS.[1]

IT is always unpleasant to be made sceptical as to old stories, but often this has to be done. As regards the legends of early Rome, since Niebuhr few or none have believed in them literally, although the last few years have brought a reaction, and it seems to be recognised that some truth must lie under the legends; but the excavation of the Forum by Boni, with its startling discoveries, has revived the question. M. Pais's second chapter (which follows on a discussion of the historical method) deals with these, particularly the Black Stone and the ancient inscribed cippus. By a comparison of the letters of this inscription with other inscriptions found on Italian soil, and a consideration of the stratum on which it stands, M. Pais concludes that it need not be earlier than B.C. 387, the year of the Gallic Fire, and that it may be referred with equal probability to the sixth, the fifth, or the fourth century B.C.[2] This is bad enough for the man of faith, but worse is to follow. The Cloaca Maxima is now "demonstrated" to be a work of the republican period, and the cemetery found by Boni, and assigned to a pre-Roman age, may belong to the same period.

The third chapter deals with the Origins of Rome. M. Pais publishes a remarkable Pompeian painting of the legend of Mars and Vibia, which embodies some elements of that of Jupiter and Juturna. This leads to a discussion of the sacred Fig-tree, and the story of Acca Larentia. Acca is a chthonic deity, and is associated with Jupiter because a sun- or light-god is subject to the vicissitudes of growth and dwindling. Her two legends are analysed, and difficulties explained by topographical association. He fully identifies Acca with a she-wolf, and sees in this a brutal symbolism of the reproductive powers. With much ingenuity he draws a picture of the primitive Palatine community, which is quite without charm.

We have not space to follow M. Pais through his analysis of all the other legends—Tarpeia, Servius Tullius, the Horatii and Valerii, the Fabii, Lucretia and Virginia, Minutius and Maecius. He uses the same remorseless method, and finds them nearly all unworthy of belief; and he sets up his own theories to account for them. This process is necessary, although, as we have said, it is unpleasant; and whatever view other scholars may take, they must not ignore the wide learning and keen insight which are here brought to bear on their destruction. Full as the book is, a great many topics are only alluded to; indeed, there is rather too much of allusion and not enough of lucid summary. "This is not the occasion," "I have proved elsewhere," and like phases, meet us on many a page; and a complete study of the book would imply the consideration of many books and papers, together with very many ancient passages, to which reference is given in the notes. We are not alv vinced, by any means: thus the identi Tarquinia with Tarpeia, of the good v the traitress, seems to be strained, unlikely that so many legends told beings should be due to stories of the g topographical chapters appear to us special importance, since M. Pais has unrivalled knowledge of the sites. Amo are the position of the Tarpeian Roc Quadrata, and the various phases of t Roman city. There are several excurs number of excellent photographic plates passages in the text to which the plates not properly indicated, and there is no

[1] "Ancient Legends of Roman History." By Ettore Pais. Translated by Mario E. Costanza. xvi+356 pp. (Swan Sonnenschein.)

[2] P. 20, line 3, reads "seventh" by an error (for "second"?).

REPRINTS AND OTHERS.

STILL in obedience to the suggestions Board of Education reprints pou market—and, we suppose, into t room. "Quentin Durward" is edited Mr. Willert for the Clarendon Press: it ably printed, and has an introduction course, should be read when the novel i a few necessary notes and a glossary pended. Messrs. Ginn and Co. publish (by Mr. R .W. Bruère, of Chicago) w tains a free-spoken biography of Sir W notes. The price is 2*s.* 6*d.* It is cert that the amazing brilliance of Scott's nov be accompanied in the schoolboy's mind ruin which went with it.

Messrs. Macmillan send two of the English Literature for Secondary School sodes from Southey's Life of Nelson" one, edited by Mr. Spence, and M "Warren Hastings" (1*s.* 3*d.*) is the ot by Mr. Buller, of Clifton College. Eac contains notes and suggestive questions

Milton's "Early Poems" and "Areo are edited by Mr. Goggin and Mr. Wa University Tutorial Press, at 2*s.* 6*d.* a spectively; the editions, as usual, are se full of help.

Miss C. L. Thomson has selected a poems of Wordsworth (144 pp., 1*s.* 6*d.* Cambridge University Press. The note course, admirable. The Clarendon Pre Macaulay's Essay and Thackeray's Le Addison, and adds twelve essays from *tator* (152 pp., 1*s.* 6*d.*); this is a goo giving a bird's-eye view of a writer. T is Mr. G. E. Hadow. Mr. A. D. In "Westward Ho!" for the same pr Macaulay's first three chapters are edite Cambridge University Press by Mr. R (2*s.*); and are accompanied by an tion, notes, and an index. These chapt pall.

Mr. Laurie Magnus's "How to Read Literature" may be obtained in three fo at three prices—1*s.* 6*d.* school edition, par 2*s.* 6*d.* school edition, parts i. and ii., an library edition, part i. or ii. The books

ell done, suggestive, interesting; but otwithstanding the preface, not for They are just the books wanted in the the school library, if you like; but schoolroom. All such books are the persons who *have* read.

Marsh has prepared, on original lines, a d Course of Literary Reading and Com- (Blackie, 256 pp., 2s.). The questions n very useful, and *with a good teacher* would undoubtedly succeed.

TEACHING OF DRAWING.[1]

h of a series of memoranda on the teaching chool subjects, which are being issued by the ation Department, is an important one dealing aching of drawing. This memorandum is in ts remarkable; in fact, it might almost be epoch-making, so drastic and iconoclastic are which it seeks to inaugurate.

be feared that many of the ideals expressed present conditions, unattainable, and that their would demand the services of experts and considerably greater attainments than are at ilable, at any rate in the average country s aspect, however, does not concern us, and asten to express our most complete accordance als and aspirations which are expressed in the n, and to commend it most sincerely to the all teachers of drawing, whether primary or

randum disclaims any attempt to lay down a me, the policy of the Department being to eachers and managers free to formulate their ls relative to the needs and character of their hools; the intention is to present clearly the of instruction in each separate branch, and ertain leading principles which should be kept he preparation of detailed syllabuses.

iple enunciated in the opening paragraph is und: "The careful study and more or less presentation of actual objects, natural and rge and small, singly and in groups, may be as the foundation of all primary-school draw- on."

randum insists on the importance of the pupil d to record the results of his own observa- aks emphatically of the futility of diagram d warns the teacher against the present letting his explanatory sketch become a mere condemns the prevalent practice of "lightly n outline drawing as being untruthful, and e representation of tones in their true value the pupils can see them." In this connection nely and necessary plea for accurate drawing: hat a drawing is to be expressed in tone or in ld be a reason for greater faithfulness in l not an excuse for inaccurate work."

rks on brush-work should form a salutary se misguided enthusiasts who are riding this eath; whilst the strictures on the use of helps and construction lines, the deprecation etrical models, and the discouragement of the use of perspective rules, as indicated in the following extracts, are all based on sound educational principles.

From the very beginning the child should be encouraged to observe on his own account, and to record the results of his observations with as much accuracy as he is capable of. Nothing should ever be interposed between him and what he is representing. This principle is a fundamental one, and should be strongly impressed upon the pupil from the start, care being taken to avoid anything which might tend to weaken or confuse the idea in his mind. He should always feel that he is recording his own impressions of something real, and not those of anyone else, however accomplished; so that although his representation may be crude and its accuracy only approximate, it shall be at least an honest attempt of his own to represent what he has actually seen, and as such will afford a firm basis from which he may proceed to more and more accurate renderings.

If this important principle is logically carried out, it is clear that there can be no place in any primary-school drawing scheme for the copying of diagrams or pictures of any description, either printed or drawn. Printed cards or diagrams are, as a rule, either representations of actual objects or examples of abstract ornament. A flat diagram of an actual object, being only a second-hand and more or less imperfect source of information, is not at all suitable as a subject of study. Its use, therefore, deprives the pupil of the really intellectual part of his training, the study and interpretation of reality, and confines him to the mere copying of a copy, an occupation which has but little to offer in return for the educational principles which have been sacrificed.

The teacher should also be very careful how he uses the chalk and blackboard in the course of the drawing lesson. The objections to a printed diagram apply with equal force to a drawn one, and while a blackboard sketch in illustration of a method or principle is often of service in the drawing lesson, the utmost care should be taken that this is never allowed to degenerate into a diagram to be copied or a drawing to show the pupils what they ought to see.

The practice of confining the use of the pencil to outline drawing is not favourable either to the rational development of the work or the mental training of the pupil. For him an outline drawing is a convention so universal that he is bound to accept it, but as a rendering of actuality it is thin, meagre, and unsatisfying. While conventional or dictated shading should at all times be avoided, the pupil should be encouraged to represent the general effects of light and shade as soon as he is capable of seeing and rendering them. Indeed, it should be easier for him to perceive a tone which is there than an outline which is not.

The tones should always be represented in their true values as far as the pupils can see them. An outline drawing lightly shaded cannot be a genuine tone study, and, inasmuch as it is not even an attempt to express the truth, it should never be countenanced. Throughout the whole of this work whatever accuracy of drawing lies within the pupils' capacities should be carefully maintained.

Skill in the use of the brush should be acquired, as in the case of the pencil, by employing it in a rational manner as a drawing instrument from the beginning. No preliminary course of brush marks should be indulged in, nor should the brush ever be treated in any special or exceptional way as a thing apart from the regular drawing lesson. Whether exercises with the brush are included in the syllabus of manual occupations or not, the

[1] cation Department: Memorandum on the Teaching of man and Sons, Ltd.) (Cd. 3662.) Price 1½d.

whole of this work should be carried on as an integral part of the general drawing scheme, and strictly in accordance with its principles. The substitution of a series of mechanically produced brush markings for the study and representation of the natural forms which they may happen more or less closely to resemble is a singularly perverted and uneducational method of instruction, however showy the immediate results may be.

Where the school has access to a good collection of natural-history specimens, such as properly stuffed birds, a comparative study of the heads, feet, or other characteristic parts of different types forms a valuable exercise. A stuffed specimen should always be rendered frankly as such. Any attempt to represent it as a living creature on a tree or hillside is untrue and undesirable.

A good deal of care should be bestowed on the choice of what may be termed fashioned articles for study and representation. In this work the more or less permanent and lasting nature of most of the material permits of a constant and definite reference from the drawing to the subject, so that the representation may be compared with the original and its accuracy tested at any time. The drawing of rigid objects thus forms an excellent complement to nature drawing, where many of the subjects are liable to constant change, and from their very nature demand a freer and more sympathetic treatment.

In order to secure the full advantage of the training in accuracy of observation and rendering to be gained from the study of rigid objects, the methods of representation must be as simple and direct as possible. All elaborate systems of construction lines should be avoided, and the pupils taught to estimate relative distances and levels, and to compare one mass with another, instead of relying on a mechanical system of arm's-length measurement and angle testing, which in the end proves a hindrance instead of a help to observation. The principles of perspective should be learned from observation rather than by rule.

Imitation flowers and fruit, and cardboard representations of objects, are so obviously out of place in any rational drawing scheme that their introduction should never even be contemplated. The geometrical models, too, for purposes of representation at least, should be set aside as being uninteresting and unnecessary. Their use, even as type forms, is very apt to lead to the substitution of rule for observation in drawing.

Solid objects of cylindrical, conical, rectangular, and other forms, very simple at first and never too complex, should be gradually introduced as soon as the pupils are able to cope with them. In setting groups of objects, incongruities of selection or arrangement should be avoided. The positions of objects relative to the eye-level should be suitably varied from time to time. Objects such as a dovecot, an electric-light pendant, a swinging sign, or a hanging lantern, should always be represented in their natural positions above the eye-level. Similarly, objects the natural positions of which are below the level of the eye should be so placed for purposes of representation. A sufficient number of objects or groups to allow of every pupil having a satisfactory view from within a reasonable distance should always be set up. The necessity for a background in all cases where tone drawings, either in black and white or in colour, are being made, should be strongly insisted on. In some of the higher classes draperies can be introduced for backgrounds.

Throughout the whole drawing instruction the pupil should feel that he is engaged in searching for the true *and the beautiful in* nature and in art, in recording the *truth as he finds it*, and in developing his own ideas as these are evolved. Then, if in some measure t lead him to the knowledge and appreciation of beauty when he sees them, and should imbue the desire to have them around him and with to perpetuate the true and create the beautifu self, an important stage in his intellectual d will have been reached.

GEOGRAPHY AND COMMERC

By GEORGE G. CHISHOLM, M.A., B.S

THE subject chosen for this address is illustra by reference to the broad, familiar facts of com sidered in the light of geographical and other i that may be described as obvious. As the firs obvious considerations, it may be pointed out questionably the foundation of commerce is t advantage to be derived from the exchange of ties produced in different places. Geographical r therefore of necessity implied in commerce. But carry on commerce have always aimed at th possible advantage to themselves, and the comme always attracted the greatest attention is that resulted in the greatest additions to their weal much wealth is concentrated in the hands of a tively small number of people there is sure to profitable trade in things of such value that th bought only by the wealthy, things that are m rare, such as precious metals, jewels, gems, woods, ornamental skins and feathers, manufacti of rare materials or of fine quality, as well as places and in most periods of history, slaves.

With this class of goods may be associat others that may be regarded as intermediate i between those which are bought only by the w those which are not merely generally consume very widely produced. Amongst these may be salt, the consumption of which is universal, bu duction of which, away from the seaboards of t latitudes, though in a sense widespread, is strict to scattered spots. A more interesting exam of spices, one of which, pepper, has from a ren been very generally consumed, but in still small than salt, and for that reason has been able to higher transport costs. For ages these costs high, for various reasons, amongst which were numerous and great, but the profits of those successful in the trade were proportionately high

Peculiar importance in commercial geography given to the relations between the regions tha yielded spices and those in which they were at a great distance from the place of origin, a the most important facts in human history is many hundreds of years an extremely valuable these commodities was carried on between Indi Mediterranean.

The routes between India and the Mediterra singularly few. They were practically confine most part to minor variations in two main rout way of the Red Sea, the other by the Persian more than one period of history, in very early the days of the splendour of Assyria and Baby again in the flourishing days of the Caliphs of Ba Persian Gulf route had a peculiar advantage in ence of the large and rich populations that a

[1] Abridged by the author from the presidential address to the Section of the British Association for the Advancement of Scie August, 1907.

e market; and another important fact in the geography and commerce, one that has had on human history, is that the physical con- he area between the head of the Persian Gulf diterranean are, and throughout human history such as to make the most convenient outlet of some point or points on that seaboard which times was known as Phœnicia. Between that nd the Euphrates the desert is sufficiently o be most easily crossed. As the articles from h of the wealth of commerce was derived ame from India, it was natural that the idea e that India was a wealthy country, a country possessing. It is perhaps doubtful whether was in historical times a wealthy country in of producing a great abundance of the neces- ordinary conveniences and comforts of life in to the population, but if it was not rich itself least the means of making others rich. There be a doubt that the desire of possessing this real or imagined wealth was prominent among s that led Alexander the Great to embark on prise which had such surprisingly widespread, and lasting effects on the history of the Near ve may accept as historical the speech in which urtius represents Alexander as having addressed after his victory over Porus, in order to them to advance further into India, that speech ly strong evidence of what has just been stated. w remained for them," said Alexander, "was oil. The much-rumoured riches of the East n those very regions to which their steps were The spoils accordingly which they had taken Persians had now become cheap and common. going to fill with pearls, precious stones, gold, not only their private abodes, but all Macedonia e."[1] Alexander was no merchant. Pepper was is notice. His symbols of wealth are those e always most powerfully affected the imagina- er on, however, we shall meet with a king who rchant, and who understood perhaps better than wherein consisted the value of Indian trade.

outset of his career Alexander had destroyed king, no doubt, that he had thereby wiped away of one rival for a share of the wealth of the it is a noteworthy fact that he did not thereby e value of the site of Tyre under the conditions n subsisted. Tyre revived and again obtained m its trade with the East, as it did again and ubsequent history. A heavier blow to Tyre than destruction was the ultimate accomplishment of 's idea for founding a great seat of commerce on ar which he saw could be created in the neigh- of the Nile delta. The foundation of Alexandria uccessful efforts of the successors of Alexander to divert a large part of the trade in spices and ental goods to the Red Sea route for the nean did more than a single act of war to yre and other Phœnician cities of the peculiar nce which they had long enjoyed in the trade in lth-bringing commodities.

rhaps the history of Venice shows even more an that of Tyre the importance of this eastern connection with certain inevitable geographical The foundation of the future commercial glory may be said to have been laid when Rome planted her colonies north of the Po. The gradual clearing of forests gained for agriculture to a greater and greater extent one of the most favoured agricultural areas in Europe. There resulted a superfluity of agricultural products, which begot a trade by sea. The great outlet of this plain in Roman times was Aquileia, which in the beginning of the fifth century, when no one of discernment could imagine that there would ever be other than Roman times, was described by a Roman man of affairs and minor poet as one of the nine great cities of the world. But before that century was out Aquileia was destroyed, never to recover. The value of its site was replaced, and that in a strange way, which no man of discernment could ever have foreseen. The time that saw the destruction of Aquileia and the times that immediately followed were such as made safety a prime consideration, and especially for all who possessed or desired to possess wealth. Refugees from Aquileia, and afterwards from other Italian cities, thought at first of nothing but safety. Many of them found it on a few muddy and sandy islands near the muddy shores of the lagoon in which Venice now lies. But here they found the means of trade. The sea could be made to furnish both fish and salt, and the rivers that flowed into the lagoon enabled them to exchange these commodities for provisions of other kinds which the adjoining land could supply. Gradually this commerce grew, until in the eighth century we find the Venetians trading with Syria and Africa, Constantinople, and the ports of the Black Sea.

Throughout the period of growth the policy of this trading republic, both by land and sea, is very significant. Venice early realised the force of Bacon's maxim "that he that commands the sea is at great liberty, and may take as much and as little of war as he will." Power at sea was necessary to provide security for her commerce. In early times she generally owned allegiance to the Eastern Roman Empire, a suzerainty which could do her little harm and could and did do her much good. To that allegiance she adhered until she was strong enough to turn against and reap advantage from the overthrow of her suzerain. At an earlier date, before the close of the tenth century, she had conquered Dalmatia, and thereby destroyed the hordes of pirates who had found refuge in the innumerable harbours of that coast and constantly harassed the commerce of the Adriatic. At every opportunity she secured establishments and acquired possessions in the Levant.

On the land side, however, dominion would have added more to her risks than her advantages, and that dominion was not sought. For more than eight hundred years after the first flight to the islands of the lagoon, more than six hundred after the election of the first Doge (697), Venice possessed no territory on the mainland beyond a mere narrow ribbon on the edge of the lagoon. The nature of the situation made her indispensable to the trade of the land immediately behind; and while possession on the mainland was not necessary to Venice, she always recognised and sought the advantage of good relations with the occupants of the plains behind her, whoever these occupants might be, and on every occasion endeavoured to turn to her own benefit the vicissitudes of those plains. In her early days she is found now in alliance with the Greeks, now with the Pope, now with the archbishops of Ravenna, and now with the Lombards, just as it happened to suit her interests, and in any case taking every opportunity of obtaining direct and indirect advantages from trade with the most profitable customers in the plains. When famine pursued the steps of the Lombard invaders of Italy in the sixth century, "the Venetians in their

[1] Crindle, "The Invasion of India by Alexander the Great," 5.

pacific retreat," says Mutinelli,[1] "could send their ships to the ports of Apulia and elsewhere to obtain victuals and corn for the famished barbarians," and in consequence the Lombards took them under their protection and granted them security and favours throughout the Lombard kingdom. When Charlemagne, at the invitation of the Pope, invaded Italy to deliver the Church from its subjection to the Lombards, Venetian traders promptly appeared in the camp of the Franks at Pavia and sold to the Frankish chiefs all the riches of the East—Tyrian purples, the plumage of gay birds, silks, and other ornaments, pranked in which the purchasers stalked about in their pride, feeling, no doubt, that now at last they had conquered a land the wealth of which would reward all their labours and hardships.

In further illustration of the nature of the relations of Venice to the North Italian plains, reference may be made to some of the points mentioned in a celebrated and often quoted address delivered to the principal senators of Venice by the Doge Mocenigo just before his death (1423), at the time at which Venetian trade was at the very height of its prosperity. At that time Venice was in possession of a considerable tract of adjacent territory on the mainland, and there was a party favourable to further action on the part of Venice against the growing power of Milan. The aged and sagacious Doge feared that this party was going to gain the upper hand and elect as his successor Francesco Foscari, who, he thought, would involve them in dangerous and disastrous as well as useless enterprises. The immediate occasion of the conflict of views in the Venetian Senate was a request of the Florentines for support against alleged designs of the Duke of Milan. Mocenigo, however, not only warned the senators in the most earnest and urgent language against Foscari personally, but also advised them against the particular enterprise, maintaining that it was of no consequence even if the Duke of Milan made himself master of Florence, since the artisans of Milan would continue to send their manufactures to Venice, and the Venetians would be enriched to the loss of the Florentines. He then went on to give particulars of the trade of Venice at that time, dwelling specially on the value of that with Lombardy.

Mocenigo in this address laid no special stress on the spice trade, but there is not the slightest doubt that spices were amongst the most important commodities with which the Venetians provided a large part of the western world. Just as nowadays the large trade of Britain in bulky goods makes of this country a great entrepôt for the more valuable and less bulky, so in Venetian times the exceptionally large population behind Venice receiving and supplying the bulky goods thus fed the shipping which brought to Venice a much larger proportion of the more valuable goods of the East than was brought to other ports. But there is plenty of direct evidence of the importance of Indian trade to Italy in the Middle Ages. It is significant that a sea-way to India should have been sought by Genoese as early as 1291, and even more significant that a century later Venice should have found it worth while to maintain a consul in Siam.

But the clearest evidence of the supreme importance of the Indian trade to the Italian cities is to be found in the results of the discovery which finally diverted from Venice and the Mediterranean the great bulk of the Indian trade until that trade had lost all the special significance which it had retained for thousands of years. It need hardly be said that what is here referred to is the discovery of the sea-way to India in 1497–9. Of the feeling aroused *in Venice by this* discovery Romanin has reproduced, from the "Diarii" of Priuli, an interesting cor record, written with reference to a despatch to probably from Pietro Pasqualigo, a Venetian Lisbon at the time of the return of the second voyage to India under Cabral. The letter is stat reached Venice on July 24th, 1501. After giving in which we are told, among other things, Portuguese had charged their ships at Cochin at a price which the writer feared to mention. P "On the arrival of this news at Venice all th deeply moved and remained stupefied, and the it for the worst news that could reach them. Fe recognised that Venice had risen to so high a renown and wealth solely by the commerce and by navigation, by means of which every ye quantity of spices was brought thither, which then flocked together to acquire, and that by the and the traffic they obtained immense advantag this new voyage the spices would be brought Indies to Lisbon, where Hungarians, Germans, and French would seek to acquire them, being them there cheaply; and that because the came to Venice passed through the whole of the countries of the Soldan, paying in e exorbitant duties, so that at their arrival at V were so weighted that what at first was of the single ducat was raised in the end to sixty hundred ducats; from which vexations, the voy being exempt, it resulted that Portugal could gi a much lower price."

The effects of this discovery were not long themselves felt in the notable diminution in th spices at Venice. Under the date February, 1 enters in his diary: "The galleys of Alexa entered into harbour empty: a thing never be In the following month the same thing happ case of the galleys from Beirut. Under Augu is stated that the Germans at the fair of th month had bought very little. Various remedi evils were thought of, and among these it is to note that in 1504 the Council of Ten serious a proposal to empower an envoy to the Sulta to come to an agreement with him, if possil cutting of a canal through the Isthmus of Suez

Before going further, however, there is on the comments on the discovery of the sea-wa quoted above from the "Diarii" of Priuli for notice. Hungarians, Germans, Flemings, he observes, will in future go to Lisbon to ge of India more cheaply than at Venice. T illustrates the difficulty of shifting the geogra of view according to circumstances, a difficult at all times abundant illustrations can be o purchasers of spices who come first into the mi are Hungarians and Germans. It was inevitab should be among the leading customers of V Hungarians were supplied from the Dalm which belonged to Venice. The Germans ca of the Rhine and the Elbe, and then across get supplies for central, north-western, an Europe. But it was neither Hungarians n who came in greatest numbers to Lisbon to bu which Portuguese ships brought from the Ea case Lisbon had no advantages like those of supplying by land a large and rich population behind it. The valley of the Tagus was smal and had not the capacity for expansion in population which the Lombard plains had wh merce of Venice began to grow. The bulk c

[1] 'Del Commercio dei Veneziani,' p. 12.

Lisbon had therefore to reach their final routes that did not pass through Lisbon into ·. To supply the most important of those was the Dutch, the people who held "the keys for the important valleys of the Rhine, Meuse, , who came to Lisbon in greatest numbers to ›f the Portuguese. And here it has to be added ite of the discovery of the sea-way to India, ns continued to retain great advantages in the with Hungary and parts of Germany, as well se, the northern plains of Italy. Things did always as bad as recorded in the years 1504 The Portuguese, while maintaining successfully red years the monopoly of the trade in spices : of origin in the East, found their advantage the trade with Europe between the sea-way rsian Gulf route, of which latter route they y since the final capture of Ormuz in 1515. y way of the Tigris through Baghdad (the so- lon of those days) and the Euphrates to the an seaboard was again revived, and was main- ›ng as Portugal held command of the trade. this route that the first English commercial o India, that of Newberie, Leedes, Story, and out in 1583, and by which Ralph Fitch, the ›r of that expedition, returned in 1591. By Venice got back some of her spice trade; not h the same profit to herself as formerly, but : of no slight importance, not only to Venice, Augsburg, Nuremberg, and some of the other ıth Germany.

ıd doubt the bulk of the trade was now carried sea route, and we are thereby enabled to get :a both of the amount and the nature of the both points we get information from the " of the above-named Ralph Fitch, who tells he Fleete which commeth every yeere from vhich be foure, five, or sixe great shippes, rst hither [to Goa]. And they come for the n September, and remaine there fortie or fiftie then go to Cochin, where they lade their Portugall."[1] Now in 1583 a ship of 500 tons nly be called a great ship. In 1572 the largest g from the port of London was of 240 tons,[2] :est of the first fleet of the East India Company 600 tons. Probably 3,000 tons would be the t of the aggregate cargoes annually brought for in any case much room in the ships was · the large crews of those days with their

ımmodities sent home from India, Fitch men- ; place only pepper, and the correspondence of with the King of Portugal soon after the the sea-way to India clearly reveals how all- he pepper trade was; but it may be worth ve the complete list of the commodities which ı enumerates at the end of his "Narrative" from India and the country further eastward. not a long one. It comprises pepper, ginger, ıegs and maces, camphora ("a precious thing Indians . . . solde dearer then golde"), es, long pepper, muske, amber, rubies, ıd spinels, diamants, pearles, spodium, and kindes of drugs from Cambaia—all of them, ɔserved, having the character of being of high oportion to their bulk, so that a very great value of such goods might be carried in ships of small capacity.

Fitch does not tell us what was sent in return, but information as to that is to be had from other sources, and presents one or two points of interest. In 1513 Albuquerque, after a long course of fighting, concluded a peace with the Zamorin of Calicut, in which it was agreed, among other things, that the Zamorin should supply the Portuguese with all the "spices and drugs" his land produced, and that "coral, silk stuffs, quicksilver, vermilion, copper, lead, saffron, alum, and all other merchandise from Portugal" should be sold at Calicut as heretofore.[1] Coral comes first in this enumeration. To us at the present day this does not seem a very important article of commerce, but it was otherwise then. One Mafio di Priuli, writing from India in 1537 to the Magnifico M. Constantino di Priuli, says: "At a great fair which is called that of Tremel I have seen buttons of coral sold for their weight in silver."[2] Our letter-writer says further in his cheerful, hopeful, gossiping way: "The gains of these parts are other than those of Damascus, Aleppo, and Alexandria: for if one does not gain cent. per cent. from Portugal here, and from here back again, one thinks that one gains nothing. And three or four years would be quite enough."[3] But, while he indicates how these immense gains are made, he also indicates clearly enough how they continue to be made—that is, how they are so counterbalanced by losses that if these great gains were not made on occasion commerce would cease. It was all very well to exchange your coral for spices, but the great matter was to get your coral out and your spices home in safety. The writer of this letter had entrusted to a friend who had left on a ship for Ormuz jewels of the value of 4,000 Venetian ducats, but the jewels were lost. He believed that his friend was murdered. "But such losses," he adds, "will occur." Another time he lost more than 6,000 ducats gold in Portuguese vessels going to Ormuz, and on another occasion he suffered great loss when Pegu was sacked by the King of Burma.

These notes may serve to illustrate the conditions of trade in the glorious days for Portugal when fine fortunes were heaped up in Lisbon through trade, but the great bulk of humanity got very little, at least directly, through that trade; but we have not exhausted the interest connected with the nature of the outgoing commodities for India, and to that it will be well to return. Another of the stipulations of the treaty of 1513 above referred to was that while duties were to be paid in coin, "the Portuguese were to pay for all the pepper and other merchandise they might purchase in kind," and, as the peace led among other things to a dearth of prizes, Albuquerque "was constrained to send an urgent request home for large quantities of merchandise to be sent out to make up for this deficiency."[4] But things were certainly different a hundred years later. In the voyages of the English East India Company of the four years 1620–3 inclusive, the value of the bullion (chiefly silver) sent out to India was £205,710, as against only £58,806 worth of merchandise.[5]

Now, what is the meaning of the change in the position of silver in Indian trade which seems to have taken place between 1513 and the end of the sixteenth century? No

1 Horton Ryley, "Ralph Fitch," p. 61.
2 *Ibid.*, p. 17.

1 Danvers, "The Portuguese in India," vol. i., p. 283.
2 P. 34 of the letter referred to as published at Venice in 1824.
3 *Ibid.*, p. 29.
4 Danvers, vol. i., pp. 284, 286.
5 These figures are taken from p. 6 of the appendix to P. Colquhoun's "Treatise on the Wealth, Power, and Resources of the British Empire." 2nd ed., London, 1815.

doubt we may see there the result of another change in geographical relations brought about by a discovery nearly contemporaneous with that of the sea-way to India—namely, that of the New World. The first result of that discovery of importance to commerce was the pouring into Europe of large quantities of the precious metals, and the quantity was enormously enhanced after the silver mines of Potosi, in Upper Peru (as it was then called), were discovered in 1545. It was probably this discovery that brought it about that, of all commodities of such small bulk in proportion to their value as to stand the costs of transport to the East, this was the one which could be sent out for most part with the greatest advantage. And this discovery no doubt also helps to explain why that of the sea-way to India had so little effect for a very long time in lowering the prices of spices in Europe, why prices even rose. At the time of the return of Vasco da Gama from the first voyage to India the price of pepper at Lisbon is estimated by Danvers[1] to have been about 1*s.* 5*d.* per lb., and we all know that the immediate occasion of the foundation of the English East India Company about a hundred years later was that the Dutch suddenly raised the price of pepper against the English from 3*s.* to 6*s.* and 8*s.* per lb.

But the particular commodity which made up the principal portion of the outward trade to India is, after all, a matter of detail, though not unimportant detail. The main point to be emphasised is that, whatever the commodities were, whether carried out or home, the nature of the trade with the East was little if at all altered by the discovery of the direct route to India by sea. The trade still continued to be one concerned in a moderate number of articles of small bulk but high value. It was merely a change of route that the Portuguese effected, and for more than a hundred years they remained in sole command of this route. After that, however, they were ousted from the greater part of this trade, and that the more valuable part, chiefly by the Dutch, and from a geographical point of view it is very interesting to note how the Dutch did it. They did not trouble themselves much about India proper. They left the Portuguese alone at Goa, but, by the confession of the Portuguese themselves, within thirty-six years after the foundation of the Dutch East India Company they established a monopoly of trade from the Bay of Cochin China to the point of Sunda; and not long after they took from the Portuguese successively Malacca, which gave command of the route to the Far East (1641), and Ceylon, almost the only place from which the true cinnamon was to be obtained (1656).

The general character of the eastern trade remained, however, the same. The English East India Company, the operations of which, through the hostility of the Dutch, came to be restricted to India proper, there founded a trade that gave much more opportunity for expansion under modern conditions than that of the Dutch, but for a long time it retained the same character. All the commodities enumerated by Colquhoun as brought back by the voyages of 1620–3 in exchange for the bullion and merchandise sent out were pepper, cloves, mace, nutmegs, Chinese and Persian raw silk, besides calicoes, the sole manufactured article, and one, of course, that had relatively a much higher value than now, when the direction of the trade in that commodity is reversed.

What has brought about such changes, what makes the essential difference between recent and all previous commerce, is the series of enormous improvements in the means of communication which followed so closely on the invention of textile machinery and the improvem steam-engine in this country. These improven had two important effects on commerce. First, facilitated the maintenance of order and securi land and sea, and thus enormously reduced th commerce. Secondly, they have directly lowere of transport for different goods in different degr goods of little value could now for the first tim ably conveyed many hundreds of miles by lan port, and there load ever larger ships for dist thus opening up markets with vast undevelope in the heart of great continents. Along with th goods the more valuable goods are carried at below that of former times, so that for such c as pepper the mere freight is almost a negligibl

At the present day there can be no doubt th of quantity the spice trade is much larger th was. If Venice could get the whole of that her hands, a thing which she never had, the t not now bring her a tithe of the wealth which in the days of her grandeur. It was James W Stephenson, William Symington, and Robert F without intending it, and without being able what in this respect they were destined to do, value out of pepper, and that in a manner wl the strength of armies nor the subtlety of stat have done anything to prevent.

Now the countries that offer the most markets for the greatest quantities of goods are no longer those which look to the spice trade in any specially valuable commodities enrichment, but those which abound in coal s to develop a great amount of manufacturing i industry engaged for the most part in work million, not merely in producing the luxuries The commodities of very small bulk in propor value now have a comparatively insignificant

Perhaps the greatest feature of modern com unparalleled manner in which it has promoted of population nearly all the world over. I possible for manufacturing and commercial depend in a very large measure for their ve subsistence on supplies brought from the earth, it is rapidly pushing the settlement of to the base of the mountains and the edge o Fifteen years ago Prof. Bryce said: "We ma that within the lifetime of persons now livi flow from Europe to North America will hav stopped."[1] We are at least nearing the tim "new lands" of this earth in the temperate have been allotted. The results of such a c pansion after a long period of stimulation t must be momentous, but what the nature of will be it is scarcely possible to foresee. It ever, be regarded as certain that, if we are t to make any probable forecast as to the cour development, one of the most important aids t must consist in the study of the relations o and history from the point of view indic present paper. To study these relations reference to the immediate causes and effe and treaties gives little real insight into the geographical influences in history. As in the human body medical men have recognised t of ascertaining with the aid of the microscope functions of the cells of which the body i

[1] As above, vol. i., p. 64.

[1] "The Migrations of the Races of Men considered Histo *Scottish Geographical Magazine*, 1892, p. 419.

ogical states that interfere with their normal and the effects on one part of the body of sturbances of function in another part, so in course of history it is becoming more and more that the minute gradual silent changes must d into and taken into account, not merely in the regions in which they take place, but in may be, to regions far distant.

E TEACHING OF HYGIENE IN AMERICA.[1]

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e from the American Academy of Medicine.

s require physiology and hygiene to be taught ic-school children. It is a significant fact that nodern text-books, the majority of them by (less satisfactory earlier ones were by are little used. Teachers more often prepare outlines, or have an official syllabus. These d officials are neither sanitarians, physiologists, sts. A very few official and medical amateurs gy believe that to require daily attention to tails is sufficient.

schools the resulting instruction in hygiene, both and practice, is brief, desultory, unsymmetric, ading, and generally inconsistent. In upper icularly it is usually a bore to both pupils and More than one instructor says with compunc- do this like a parrot. I really know nothing subject except what books state." Text-books l syllabuses are beyond the capacity of the ass teacher. Theoretically, all instructors of ld be able to teach sufficient hygiene. Our tury's experience, however, fails to prove that case; it proves, indeed, that the very great teachers have not been, although laws require ination in this as in other mandatory subjects.

Methods than Text-books and Syllabuses.—egoing does not cover all instruction in hygiene. names domestic science, nature-study, physical medical inspection, work so good is accom- certain cities that these insistently commend as the really efficient methods. These subjects haracteristics in common: *they vitalise precepts tration and practice*, and *they are under speci- ied leaders* (teachers, supervising specialists, The noteworthy result is that the pupils er and intent, and the lessons result in marked the use of language, in general ability, and r.

Inspection, Physical Training, School nd Parents' Clubs.—Medical inspection in- irectly but forcefully by directing the attention parents, and the public to the care of the general health and development; to school lighting, ventilation, and playgrounds; but ction instructs most efficiently through school means much in two of our largest cities, where to eighty trained nurses not only attend to ients at the schools, but daily radiate therefrom into homes, showing mothers details of cleaning, feeding, clothing children, and of caring for the house. The immediate result observed is that pupils sent home from school by the physician return sooner and in better condition, and that many otherwise unknown wrongs to childhood are reported to the proper authorities for correction.

A valuable supplement is found in mothers' (or "parents'," including fathers) clubs. Social devices invite attendance, and under discreet leadership are discussed parental problems, such as clothing, food, amount of sleep, care of teeth; recreations, children's reading, and instruction concerning sex and morality; temperance and cigarettes; communicable diseases. Public illustrated evening lectures on these topics are occasionally given at school houses.

A wide divergence in ideals and practice exists, from almost valueless inspection and gymnastics to alert officials who utilise their opportunities for implanting a fundamental understanding of the habits of health. The best possibilities have not yet been developed to the extent desirable. The true value of active games, athletics and dancing, in combating cigarettes, alcoholic drinks, and other evils, is still to be demonstrated, together with their further usefulness in training for citizenship.

Biologic Studies, Hygiene, and Colleges.—The most systematic and thorough teaching of physiology and hygiene is found in classes in domestic science and branches of biology (nature-study, botany, zoology). That on many sides, independently, instruction has begun in the application of biologic science to daily living strongly indicates its essential value.

The great hindrance is that institutions training superintendents and principals are so bound by academic traditions that these officials, lacking the all-round intelligence which includes natural sciences and their practical applications, fail to supply this want in children's education as efficiently as the public demands. Neither do our colleges and universities encourage instruction in hygiene, only three out of fifty-six requiring entrance examinations in it.

Nature-study and Hygiene.—A sketch of typical work in nature-study suggests the possibilities inherent in the subject. These teachers have qualified in biology, including related physics and chemistry, with the occasional exception of one without previous preparation, selected because of marked aptitude, and working under the supervision of a specialist. It is possible to develop one such teacher from the staff of nearly every elementary school for pupils under fourteen, provided the supervisor of the science work is a competent official.

Two schools with children from ten to fourteen years of age studied household insect pests. Flies were found much more interesting and injurious than the children had known. The pupils collected eggs, watched them hatch into larvæ, saw the fly come out of the pupa case. They mounted between plates of glass, egg, larva, puparium, male and female flies. They thus learn the life-story of the fly—where it lays its eggs, what flies live on, how they carry filth and disease from sputum and other discharges to the next object visited, which may be one's face or food. The children, almost of their own initiative, started a crusade against uncovered manure heaps, foul garbage pails, and other common uncleanliness; they learned to believe in screens and covered food supplies.

The life-story of mosquitoes, from the "raft" of 180 eggs in a waste-water tub, proved still more fascinating.

[1] by the author from a paper entitled "Lessons from a Quarter- gal Requirement of the Teaching of Hygiene: Demonstration must Supplement Precept; with Pupils over Ten only Special ceed," read at the second International Congress on School .

That one insect, according to pupils' own facts and computations, may be responsible for some millions of others within two months aroused special interest in the fate of a cupful of "wrigglers" poured into an aquarium of little fish. Committees, organised for their various neighbourhoods, hunted out stagnant water and applied the kerosene treatment with zest. The Anopheles was found; and flies, mosquitoes, bed-bugs, fleas, rats, and other animals as carriers of germ and parasitic diseases became a live topic.

The life-stories and natural enemies of other vermin were traced—roaches, moths, buffalo bugs, mealworms. The cost of extra labour and of damage to clothes and food was calculated.

The children studied the life-histories of insects destructive of vegetable life. Nearly one million dollars annually is lost by these pests in the United States, and even more by fungous diseases. Popular information in these lines alone would return the cost of instruction many times over. Cats as destroyers of birds (nature's agents in controlling insects) and as distributors of fleas and disease germs began to lose popularity as pets in one neighbourhood.

They studied the life-stories of plants of economic value, including some desirable to introduce for food, and made simple tests for their nutritional value. We use but about 2 per cent. of the 1,000 edible plants known.

One pressing problem is solved by these biologists partly in the work already outlined, but better in other laboratory work that space does not permit to be described: how schools can teach wisely the transmission of life and sacredness of parenthood—instruction which few parents undertake until too late, which many cannot teach rightly, which many never teach at all, neglecting this one of the two vital concerns of living, with so many tragic results to the individual and society. (See References.)

DOMESTIC SCIENCE AND CONTENDING INFLUENCES.—Not only the meaning and value of the gift of life, but the art of making a home—the unit of society—has been omitted from popular education until very recently. Under the name domestic science indispensable knowledge of personal and domestic hygiene is given. Two contending influences have appeared wherever introduced: on one hand short-sighted parents wishing immediate filial service after their own ignorant standards, and equally short-sighted school-men claiming that indifferent cookery and manual work is the basis of better homes to be encouraged by schools; on the other hand the far-seeing, who recognise this opportunity of introducing appreciation of fundamental elementary science and its definite applications into common life that will raise home-making and civilisation to a higher plane.

These two attitudes result in practical differences in classes, convincing intelligent observers that even good manual work is improbable without the discriminating scientific preparation of teachers in physics, chemistry, and especially biology; not only for information, but for the habits of accuracy in observation, in reasoning, in execution, as well as for the superior resourcefulness and personality going with these attainments.

SPECIAL TEACHERS.—When such special teachers are employed one sees cleanliness of utensils, food, room, and person consistently maintained. One must observe several such instructors to appreciate where teaching household sanitation and hygiene should begin when homes do not supplement. After two years' intelligent, painstaking observance of scientific laws one finds a pretty neatness, accuracy, and mental awakening replacing the former slovenliness and vacant expression. A few of the best schools include boys in these classes, for whom and economics of hygiene and sanitation are as for girls.

Typically good courses demonstrate that h sanitation can be as definitely taught, as practised, as intelligently understood by boy from ten to fourteen years of age as can arith it is invariably accomplished by special teach of simplifying fundamental biology, chemistry, for easy comprehension; and that they work u supervision.

The classes under the charge of superficial teachers and supervisors likewise demonstra maintain domestic science under such guidance public funds and discrediting a most valuable Mis-statements of facts, dirty finger-nails an use of hands, carelessness of dish towels, flie garbage pails and cupboards, improper servir ing, confusion and bustle, are common fail contrast between the kitchens and classes of scientific teachers and of those where "manu ideas predominate suggests that between th under an anxious mother and under a trained has time for all essentials in orderly sequence urges want of time as an excuse for evident sl while of many she is unconscious.

It seems a wilful shutting of the eyes to obv the evolution of domestic work, and of women since elementary education has been required, that routine housework, monotonous because of isolation, and lack of the stimuli of appre compense, recreations, and standards, shoul attractive than shop, factory, and office. T endeavour calling for higher ability than the r home. Since even the humblest needs intellige fulfil their mission only when they train fi makers, both boys and girls, in an understan simple laws of science that raises living and into a conscious part of the great scheme of (See Reference 1.)

CORRELATIONS.—This excellent teaching through school nurses, parents' clubs, physic nature-study, domestic science, is still heavily d its want of co-ordination; numerous hiatuses, c and even inconsistencies resulting. Neither correlated with other branches of instruction, the same fault too often among themselves. of subjects is the secret of having abundant essentials of education. Many teachers state metic is first learned in laying out a school outdoor laboratory of nature-study—and in ru in the laboratory or school kitchen. An children's written work I have found the b the most logical thought, and the strongest g ject in fifteen papers by children from thirte on "Reproduction in Plants and Animals," original observations. Teachers learn that the of art first appears to children when planning of a home for a family that is to live healthily Such correlation implies an expert supervisor instruction with a comprehensive understandi problems and needs.

Another co-ordination is with moral instructi biologists specially mention the alteration i of many children from eight to fourteen years caring for these fragile plants and animals w their systematic observations. There came thoughtfulness and gentleness. The faces of un

eared into frank-eyed interest, and physical oved. Accuracy of seeing and speaking, which ess, distinctly grew, with a sense of protection for the weaker and a judgment as to what is e and what is not.

it would seem as if no words could have the is actual study in impressionable years of the ws of life and its preservation. This method value of temperance more efficiently than state- children find so difficult to reconcile with s in their own environments. It is constructive the elements of normal living as a basis for e "Thou shalt not."

ul people recognise in schools the mental of children from eleven to fifteen whose infancy d with non-essential superficialities when their is demanding knowledge of vital truths, and cognise in society the evils resulting, even in n ignorance and misinformation often worse nce.

al ailments, whether due to love of money, of of various vices, resulting in ill-health, s, poverty, criminality, can be remedied only by igher ideal to that now cultivated, which is and egoistic (the perfection of the individual); iedied only when the plastic childish character by competent teachers through understanding derful phenomena of common life and their 's, which are the basis of hygiene—physical nd, in the last analysis, of all morality.

t "learn what is true in order to do what is

ES.—(1) "Report of the Committee to Investi- eaching of Hygiene in Public Schools." Pub- the Bulletin of the American Academy of Easton, Pennsylvania. Section I., "Laws and " June, 1905; Section II., "The Teaching of rough Domestic Science and through Nature- ril, 1906; Sections III., IV., and V. not yet

logists in Public Schools an Aid to Morals rity." An Address. By Dr. Helen C. Putnam. *State Journal of Medicine*, November, 1906. cticability of Instruction in the Physiology and f Sex as Demonstrated in Several Public An Address. By the same. *Boston Medical al Journal*, January 31st, 1907.

ucational Pamphlets of the American Society of nd Moral Prophylaxis." No. 2, "Instruction siology and Hygiene of Sex: for Teachers of ranches." Address: Dr. E. L. Keyes, Secre- . 34th Street, New York.

ORY AND CURRENT EVENTS.

sual prolongation of the Parliamentary Session as brought into prominence certain aspects of ution which are not written in our Statute are too often omitted from our text-books. ese is the existence of the party system, and which the party organisation wields over rs. Lord R. Cecil is reported as saying that ulties which they all recognised were largely to the rigidity of the party system. At en a man voted against his party he was at d, and as long as such things went on debates nreal, for there was no chance of converting y argument." From the "Government" side of the House, Mr. Markham "made an appeal to the Prime Minister, and represented that members were being worn out by the frequent late sittings"; and Sir J. Dickson-Poynder "asked the Government to allow their followers to vote without regard to party allegiance." But from neither physical nor moral restraint was there any release. "The Prime Minister held out no hope of relaxation of the tension." "Mr. Harcourt said he could not consent to liberty of voting." Is this generally known?

FOR what purpose is this discipline exercised—a discipline which reminds us of our own doings in the class-room? It is for "the despatch of business," as the Prime Minister explained it. "One of the difficulties in the way of this despatch," he said, "arose from the presence among them of so many members qualified to speak well on many subjects." Therefore the Parliament, the talking machine, must be prevented from talking, and even from thinking.

> "Theirs not to make reply,
> Theirs not to reason . . .
> Theirs but to do . . ."

and walk into lobbies to which they are driven by "whips." Of course, the Opposition complain of "the inadequacy of the opportunities for criticism of administration," but console themselves with the existence of "another Chamber where freedom of speech was not abolished and over which the Government could not exercise absolute control"; and the Independent Labour Party think "some sweeping and comprehensive alteration must be made in the rules of procedure before they can get through the legislation which is necessary and which the country desires." Evidently the House of Commons is in a "parlous state," at least in the opinion of many.

THIS summer there have been given many delightful historical lectures. We refer, not to the summer courses of "Extension" or other students, but to the scenic displays known as "pageants" which within the last two or three years have become popular. What has been the exact result of these pageants in the minds of those who, otherwise ignorant of history, have there learnt, for the first time perhaps, of many events, especially in the Middle Ages, which were unknown to them before? They may stimulate some to thought, and a few, even, may be wanting to read. It has been said, indeed, that the presentation of the past has helped to return a Conservative to the House of Commons. But we fear that for the large majority these shows will leave only a confused picture in the mind. They do not of themselves tend to exactness of thought, and the probable result was prettily satirised in an epilogue written for the dramatic performances given at Canterbury during the cricket week there. A pageant is there defined as "an open-air theatrical performance which makes the people of that town believe that all the celebrated events of history occurred on their own town green." It is the teachers in schools who must work to prevent this result.

No more interesting event has taken place this summer than the speech of Sir Edward Fry at the Hague Conference in favour of a mutual agreement among the Powers for a limitation of military and naval expenditure. Respect for "the good grey head that all men know," the weighty words that fell from the speaker, the good wishes expressed on behalf of other Powers, and the way in which the president of the sitting brought it speedily to a

close, all tended to make that Saturday afternoon one of the most memorable of the days on which the Conference has met. We have said it was "interesting" and "memorable." Can we add that it was "important"? We are afraid not. The official French describes the resolution as a "vœu," which being interpreted means merely a "pious hope." It was carried unanimously, and, indeed, with acclamation, but only because it was a mere expression of desire. "We don't want to fight," but——. We are not rich enough to afford universal peace, not rich enough in mutual love, in knowledge of the highest good, in absence of mutual suspicion, and only too rich in "malice, hatred, envy, and all uncharitableness" to be worthy of the millennium.

ITEMS OF INTEREST.

GENERAL.

THE autumn meetings of the Assistant Masters' Association were held at King Edward's High School, Birmingham, on September 13th and 14th. The council met on the first day and passed resolutions on the subjects of a benevolent fund, arrangements for life insurance for members, and the new Regulations for Secondary Schools. The last-named were as follows: "(*a*) *Curriculum and organisation.*—That this association warmly welcomes the decision of the Board to give increased freedom to schools in the planning and working of their curricula. (*b*) *Grants.*—1. That this association heartily welcomes the Board's proposals: (i) to pay grants on behalf of all scholars between twelve and eighteen years of age; (ii) to make the term, instead of the school year, the basis of assessment. 2. That this association is of opinion that, owing to the dearth of suitable candidates in some localities, the enforcement of paragraph 20 requiring that 25 per cent. of all scholars admitted to a secondary school shall be pupils from elementary schools may possibly lead to a lowering of the standard of secondary education in those localities. 3. That this association heartily approves of the Board's desire to secure secondary-school scholars from elementary schools at as early an age as possible; but considers that a grant of £2 per head for scholars between ten and twelve years of age is inadequate." All the resolutions were submitted to the general meeting held next day and approved.

THE address of the chairman, Mr. A. A. Somerville, Eton College, touched upon several subjects of importance, not only to the members of the association, but to the profession at large—such as the representation of secondary teachers on the new Registration Council, the importance of some amount of military training in schools, and, above all, the Richmond School case. The judgment lately given was described as one in which it was impossible to acquiesce, and notice of appeal had therefore been given. The report of the executive committee showed that the association had during the year been active in connection with such questions as co-education, on which a valuable report has been prepared by the S.E. Wales branch, the position of masters under the Workmen's Compensation Act, representation on education committees, &c. Three new branches have been formed this year, and the membership steadily increases. A special report on the Richmond School case was presented by the committee to which its conduct had been entrusted. The guarantee fund amounts at present to close upon £900. In *the afternoon* Prof. Muirhead, of the University of *Birmingham, read* a very interesting paper on "Religion in Secondary Schools," which was followed by sion, in which many of the members present took part. The paper will, we understand, be shortly in full in the *Hibbert Journal.* It mentioned that a very successful dinner of me their friends was held at the Acorn Hotel on t of September 13th, at which Mr. A. A. Som sided. The thanks of all who attended the m due to the members of the South Midland brar excellent arrangements made by them for ho members from a distance, and also to many residents in Birmingham who were kind entertain members.

THE third annual report of the Education Co the County Council of the West Riding of which deals with the year ending March 31st, an excellent account of the progress made in th of secondary education for this important secondary schools aided by the County Council been during the year an increase in the total staff from 282 to 331, the increase of forty- made up of one headmaster, one headmistre assistant-masters, and thirty-one assistant Last year's report alluded to the necessity for ing the curriculum of the schools on the litera marked improvement in this respect is tal though much remains to be done. In almost where weakness of staff is observed it is fo literary side. A drawback under which schools is the difficulty of securing competent teac especially masters) of modern languages by recent methods. Something is being done to r by the award of grants-in-aid to teachers for at classes at home and short courses of study a

THE West Riding report also states, and fact with much satisfaction, that the average assistant-masters and mistresses in the sch Riding have risen steadily since 1903, and doubt, the report continues, that a correspondi ment in the quality of the teaching has take is a little doubtful if the plan outlined in th having been adopted by the Education Com prove permanently satisfactory. "The com recently utilised a valuable source of supply b in cases of special merit, certain county ma ships on the condition that the holders shall two years' period in some approved secondar the West Riding. Up to now, school auth shown themselves very anxious to secure equipped candidates for teaching posts." It be seen, first, whether the "scholar" will lea fession at the end of the two years, and, what extent the schools will suffer from a s untrained teachers. The experiment will be w interest.

A REPORT prepared by Mr. B. S. Gott, secr Middlesex Education Committee, and Dr. E. assistant-secretary for higher education, entitl Education in the Administrative County of 1907," contains a model scheme for the reg administration of county secondary schools. functions of governors and their relationship t assistant-teachers are adequately defined. interesting are clauses 17–20, which deal with of assistants. The scheme provides that (1) th shall submit for the approval of the County scheme of work and estimate for the ensuing

mber of assistants and the salary to be paid to rding to the scale of salaries approved by the ouncil for assistant-masters and mistresses in schools; (2) the appointment and dismissal of shall rest with the governors after consultation headmaster or mistress; (3) the headmaster or all have the power of suspending any assistant for any adequate cause to be judged of by master or mistress, but shall forthwith report writing to the governing body.

ual meeting of the Trades' Union Congress was the first week of the month at Bath, under the of Mr. Gill, M.P. The educational problem ed on September 6th, when a resolution brought Mr. W. A. Appleton (Nottingham) was carried es to one. Chief amongst the demands were: te maintenance of school children; (2) scientific ucation with individual medical inspection of all tending State schools; (4) a national system of nder full popular control, free and secular, from y school to the university; (5) secondary and lucation to be secured for all by extension of the system; (6) establishment of training colleges s. A protest was subsequently moved against prejudice displayed by the secondary schools the Board of Education, against the action of tion committees in being parties to the raising y-school fees, and proposing to abolish the pay- pil teachers; a demand was also made for free education for all children capable of taking thereof. The resolution was passed unanim-

rty-four pages of the "Teachers' Classes Hand- rmation is given as to a number of courses n for teachers organised by the London County the session 1907–8. "These courses are open e to teachers in London schools, whether secondary, or technical, and are intended to chers in the various types of schools opportuni- veloping their knowledge of different subjects ing into contact with those who have made a ly of the subjects in question." A list of the rt, education, English language and literature, history, manual training, dressmaking, &c., s, modern languages and literature, physical and science—is given in the first part of the together with particulars respecting the courses s or classes, times of meetings, latest days for pplications, &c.; an appendix follows, supplying f the various courses.

effort is being made by the London County encourage the study of English literature in sses. Special lecturers have been engaged to rses on the literature of various periods in commercial centres and six secondary schools, latter the lectures will be of a more advanced

meeting of the London branch of the Historical will be held at University College, Gower ., on Friday, October 4th, at 7.45 p.m. A tution will be submitted to the members, after ation of which a paper will be read by Prof. rd, president of the branch, on "The Science History." Further particulars can be obtained ecretary of the branch, Miss M. B. Curran, uare, Gray's Inn, W.C.

THE following regulation, supplementary to the Regulations for Secondary Schools dated June, 1907, has been made: The Board of Education may, notwithstanding anything contained in the Regulations for Secondary Schools, 1907, recognise as eligible for grants for the school year 1907–8 a secondary school which, though not on the Grant List of secondary schools for the year 1906–7, was recognised for that year as a pupil-teacher centre under the Regulations for the Instruction and Training of Pupil Teachers, 1906; and such school may receive grants at the rates and subject to the conditions indicated in the Regulations for Secondary Schools, 1907.

A SECTION exclusively devoted to education will be arranged to form part of the Franco-British Exhibition of next year. Mr. McKenna, M.P., the President of the Board of Education, and Mr. John Sinclair, M.P., the Secretary for Scotland, have respectively consented to become honorary president and honorary vice-president of the section. An executive committee has been at work for some time considering the preliminary details, and it will be the aim of this body to secure an instructive display of the various phases of education and to emphasise its importance to the nation. All the principal Government departments relating to education will assist the exhibition.

THE Board of Education has decided to establish a Medical Department to advise and assist in the discharge of the new duties imposed on the Board by Section 13 of the Education (Administrative Provisions) Act in regard to the medical inspection of school children which local education authorities are required by that Act to carry out in England and Wales. The chief duties of the Board in this direction will consist in advising and supervising local education authorities as to the manner and degree in which those authorities carry out this medical inspection; in giving such directions as may be necessary regarding the frequency and method of such inspection in particular areas; and in considering and sanctioning such arrangements as may be proposed under the Act by individual authorities for attending to the health and physical condition of the children. The Board will also collect and collate the records and reports made by the authorities in the process of carrying out the new duties imposed by the Act, and will issue an official annual report on the subject.

THE organisation and personnel of the Board's medical department are not yet fully determined, but in view of the varied factors and influences which are concerned, directly or indirectly, with the health and physical condition of the children of the nation, it has been decided by the Board to establish the department on a broad basis of public health, and so to organise its work as not only to allow of reasonable freedom for local authorities as to particular methods, consistently with securing an adequate degree of uniformity in the presentation of results for comparative purposes, but also to use as far as practicable the means and methods of sanitary administration already existing, and to develop and supplement these as may be found best for the increased requirements, rather than to supplant them or to bring new competing agencies into existence where this may be avoided. As a first step the President has appointed Dr. George Newman as chief medical officer of the Board. Dr. Alfred Eichholz, who has for nine years been on the Board's staff as medical inspector of schools, will also be appointed to the medical department; and further appointments will be made in due course. The Board intends in the autumn to issue a

circular to local education authorities regarding their new duties in the matter of medical inspection of school children.

THE executive of the National Union of Teachers has issued a valuable memorandum on the Preliminary Examination for the Certificate, part ii., 1907. It is pointed out that the questions set were of a higher grade than those of the old King's Scholarship Examinations; that they are undeniably of matriculation standard, and may be welcomed for their encouragement of independent thought and reasoning power rather than memorised knowledge. The syllabus is attacked for being vague, such terms as "wide course of reading," "outlines," "elements," affording too much room for caprice or personal preference on the part of the examiners. The inordinate amount of work expected from the candidates in the prescribed time, and the apparent assumption of their possession of a critical faculty beyond their years, are justifiable causes of complaint. Lack of clearness or of uniformity in directions to candidates, and the probability that quantity is preferred to quality, call for remedy. Of the individual papers, those in geography, history, and English literature are severely handled. The general character of the criticisms, apart from these points, is laudatory; and the Board of Education is commended for its evident intention to compel its examinees to broaden their outlook. The memorandum is evidently the work of someone with close knowledge of the candidates' capabilities, and the criticisms, expressed with moderation and restraint, appear to be both just and judicious. It is pleasant to find the National Union of Teachers seeking relief from trade unionism in attending to education.

THERE is no doubt that the Preliminary Examination for the Certificate, "which has been deliberately remodelled with a view to giving an advantage to those who have been educated and not crammed" (to quote from a recent Blue-book), will soon rank as a leaving examination for pupil teachers equally high with matriculation. In point of difficulty it is well in advance of the Senior Locals. The great increase in the numbers taking the Oxford Senior this year is mainly due to an influx of pupil teachers, who, having failed in part i. of the Board of Education Preliminary Examination, the result of which was announced early in March, devoted the ensuing four months to preparation for the Oxford Senior. Even at so short notice, this examination was successfully taken by 422 pupil teachers. This number must be augmented by many others described as from secondary schools, and it would be safe to assert that more than 500 who failed in part i. of the Preliminary Examination succeeded in obtaining the Oxford Senior certificate. The Board of Education would be well advised to graduate more gently the rising standard of the examination, for it is an open secret that this year, at the last minute, the standard had to be lowered in order to prevent a wholesale massacre.

A COURSE of lectures on hygiene in its bearing on school life, arranged by the Royal Sanitary Institute, commenced on September 30th, and will continue through October. The course is to consist of lectures and practical demonstrations on *personal hygiene*—including elementary physiology, foods and diets, clothing, physical exercise, school accidents, infectious and parasitic diseases; and on *schools, buildings, and equipment*—general and structural, water supply, drainage and disposal of house refuse, air and ventilation, warming and lighting, school furniture, and physical conditions affecting health in school. The *various subjects* will be dealt with by well-known authorities, and will be illustrated with models and lante Teachers desirous of attending the lectures are to send in their names at once to the secretar institute, Parkes Museum, Margaret Street, Lon from whom the dates of the lectures can be The fee for the course is 10*s*. 6*d*.

MR. BRERETON, the divisional inspector for languages to the London County Council, is ans the attention of all teachers in modern languag be directed to the course on phonetics to be give D. Jones at Swan Street L.C.C. School, Minor mencing October 5th. He would be grateful if cipals in the various secondary schools would matter before those of their assistants who are modern languages. Apart from the possible phonetics in class, attention may be directed to value from the teachers' own point of view in those who have a good accent to preserve it from ing. It cannot be too strongly urged that mer ance alone without practice will very possibly harm than good in confirming the belief in the a one's accent. In fact, it is not unusual to mee who, having been hearers only, have never rea far their own spoken words fall short of the French pronunciation. For the practical teacher is an art. He only requires to know enough of tific side to be able to have an intelligent und of the basis on which it reposes. He is, in fa same position as a person learning a musical i which in this case is represented by his own speech. A very little knowledge of the theory is requisite; what is really needful is perpetual p

THE third International Congress for the De of Drawing and Art Teaching is to be held i from August 3rd to August 8th, 1908. The exhibition will probably be opened about a we It will certainly remain open after August 8t invitations are to be sent to all foreign Gc through the British Foreign Office. All exhibit for the exhibition must be sent in by June 1st, papers for the congress must be sent in by May they may be written in English, French, or Ge far as possible, arrangements will be made for t of the various nations to be in charge of repr who can explain their scope and purport in official languages of the congress, English, Fr German. Arrangements are being made for th ment of local treasurers and secretaries in countries, the former to collect and transmit n subscriptions, the latter to disseminate inform answer inquiries. Such officers have alre appointed for France, Germany, and the Unit The United States is making arrangements 200 art teachers over to attend the congre regard to Great Britain, local exhibitions will be throughout the country, from which exhibit congress exhibition can be chosen. Any furthe tion can be obtained from the organising secre congress, Mr. C. M. Mathews, 151, Cann London, E.C.

THE University of London has just published a useful pamphlet containing general infor internal students. The pamphlet is of the n prospectus showing the constitution and work versity, and it should be particularly helpful who have matriculated and are desirous of pur

ndon. The institutions recognised as Schools rsity in one or more of the Faculties of the e briefly described, and a map of London is wing the distribution of these colleges and of tions having recognised teachers. From a mmary we learn that 6,250 candidates pre- elves at the general matriculation examina- 06, and 2,689—about 42 per cent.—passed. for matriculation by school examinations , of whom 195—nearly 48 per cent.—succeeded Fifty candidates obtained the teacher's 906, and 224 is the total number of students ained this diploma since it was instituted.

l College for Women (University of London), pen free to teachers in London schools, have d for the Michaelmas term. The two courses he Organisation of Nature-study Courses in ols" (lecturer, Miss M. R. N. Holmer), 10.30, beginning October 5th; (2) "Geology of Physical Geography" (lecturer, Miss C. A.), Wednesdays at 6 p.m., beginning October ses can be obtained on application to the

the Calendar of Birkbeck College, London, as been received. The calendar gives details , suitable text-books, scholarships, prizes, hould be of service to students preparing for of the University of London or of other dies.

Service Commissioners have announced an for two assistants in the Exchequer and ment of the Admiralty. The examination November 5th. The syllabuses of subjects ol. viii., p. 193 (May, 1906), and the regula- same as for the Army Accounts Department, ed in our issue for May of this year.

who wish to sit in November for the com- inations for entrance to Sandhurst and Wool- ake application before October 15th to the vil Service Commission, Burlington Gardens, om full particulars can be obtained. The utlined in THE SCHOOL WORLD, vol. viii., 1, 1906).

n County Council gives notice that examina- ointments in lower sections (*a*) and (*b*) of establishment will be held on Tuesday, th, and the following day. Candidates for in (*a*) must be more than fifteen and under s of age, and in (*b*) more than twenty and years of age, on October 14th, 1907. Candi- end in their applications to the Clerk of the nty Hall, Spring Gardens, S.W., by 11 a.m. October 14th, and must pay their fees (*2s. 6d.* pectively) on November 7th for (*a*) and 1 for (*b*). Particulars of these examinations d in THE SCHOOL WORLD (vol. viii., p. 430, 906), or may be obtained from the County

PRIESTLEY, for many years house-master at louse, Clayesmore School, Pangbourne, has ed headmaster of Daventry School, North-

tice of Mrs. A. H. Christie's work on and Tapestry Weaving" in our August number, reference was made to the author's position at the Royal School of Art Needlework. We are asked to say that the reference should have been to the Royal College of Art.

SCOTTISH.

THE Education (Scotland) Bill has failed to pass. For the fifth time in succession the pressure of parliamentary work has blighted the hopes of Scottish educationists. Six precious hours were given to the discussion of what should constitute "milk-blended butter," but for the genuine milk of the word no time was to be had. For the loss of the Bill the Government must be held to be primarily responsible. The regular Opposition again and again expressed their willingness to facilitate the progress of the measure, but there appears to have been differences in regard to certain provisions in the ranks of the Ministerialists themselves. At the same time, it should be gratefully recognised that Mr. Gulland, M.P., Captain Pirie, M.P., and several other Liberal members did their utmost to secure consideration of the Bill. Sir Henry Craik, M.P., and Mr. Duncan, M.P., on the other side were equally indefatigable in their efforts.

SIR CHARLES BINE-RENSHAW, in opening a new school at Langside, Glasgow, referred to the loss of the Education Bill and the injury that was being done to education by these repeated failures. He would not regret the loss of the last Bill if in a future one some effort was made to grapple with the question of grouping parishes and areas suitable for higher education. As a preliminary he suggested that a small commission might be appointed to go through Scotland and undertake the work of delimiting such areas.

THE experiment of holding a vacation school in Dundee has proved so successful this year that an effort is to be made to continue it in the future. This year all the expenses have been met by voluntary effort, but it is certain that this source cannot be relied on year after year. The founders of the movement are therefore anxious to secure departmental recognition and financial support for their labours. The movement is, however, a social rather than an educational one, and the Department may have some difficulty in granting the request. If so, this seems to be pre-eminently a case where the local municipal authority should step in and bear a considerable share of the financial responsibility.

ST. GEORGE'S Training College for Women Teachers, Edinburgh, has been officially recognised by the Provincial Committee as a centre for training teachers of higher subjects. Excellent work has been done here in the past with but scant official recognition. It is satisfactory to find the college likely to be now placed on a basis of sound financial stability.

IRISH.

THE Intermediate Education Board, in making known the results of the examinations last June, introduced a precedent which has great conveniences, and should, if possible, be followed in future years. The Board published in the middle of August a provisional book with the results. The final official results were also published before the end of the month; but the provisional lists gave heads of schools ample time before reopening after the summer vacation to take advantage of the results in arranging their classes. The marking this year seems to have been severe in French and geometry. The general results are as follows:

Boys.

	Senior Grade	Middle Grade	Junior Grade	Preparatory Grade	Total
Number examined	464	1411	3937	2353	8165
Number who passed—					
With Honours	146	243	471	—	860
Without Honours	166	600	1644	1394	3804
Total	312	843	2115	1394	4664
Proportion per cent. of those examined who passed	67·2	59·7	53·7	59·2	57·1

Girls.

	Senior Grade	Middle Grade	Junior Grade	Preparatory Grade	Total
Number examined	213	585	1902	956	3656
Number who passed—					
With Honours	50	91	185	—	326
Without Honours	95	226	874	575	1770
Total	145	317	1059	575	2096
Proportion per cent. of those examined who passed	68·1	54·2	55·7	60·1	57·3

THE Department's summer courses for teachers lasted from July 9th to August 2nd. There were seventeen public courses and thirty-eight convent courses; six other courses began on August 6th, and lasted until August 31st. The following statement shows, in comparison, the figures of the courses for 1906 and 1907:

		1907	1906
Total number of courses	Public	20	22
	Convent	41	52
Total number of students	Public courses	489	499
	Convent ,,	252	290
Number of centres	Public	7	9
	Convent	23	21
Staff instructors engaged	Public courses	64	73
	Convent ,,	38	44

THE Department has also issued an important explanatory circular with regulations for the session 1907–8 relating to the programme of experimental science, drawing, manual instruction, and domestic economy for day secondary schools. It is in three parts. Part i. contains the official calendar for the year. Part ii. is addressed to managers and principals, and contains a new rule, which is underlined. The names of all pupils working a second time through one of the syllabuses of the programme should be notified to the Department at the beginning of the session, so that the Department's inspectors may visit the school, where necessary, to decide on their eligibility for promotion. Part iii. contains the regulations for the administration and distribution of grants under the Department's scheme.

THE report of the president of Queen's College, Belfast, for 1906–7, is again satisfactory, and shows educational progress in the north. Strong representations are now being made to the Treasury concerning the enlargement of the library, which is urgently needed. A large addition has been made during the year to the laboratory accommodation, the Treasury having given £5,400 for new buildings, and a similar sum being provided by the better equipment fund. Dr. Hamilton adds a note on the university question, and the interest of the Queen's College in its solution. He is anxious for its early settlement. He says rightly: "This college and the entire higher education of the country have long suffered most seriously from the defective national provision for this purpose, and must continue to suffer until Parliament places it upon proper lines."

A NEW sixpenny monthly, *The Irish Educational Review*, is announced to make its first appearance early in October. Devoted to the interests of Irish educational a in all grades—primary, intermediate, univ technical—the new review will have a wide fi exercise of a useful influence. The contents number will include a contribution on the univ tion, by Dr. O'Dwyer, Catholic Bishop of "State Aid and Rate Aid," by Prof. Windle, Queen's College, Cork; "Some Remarks c Education in Ireland," by Monsignor O'Ri articles by Miss Mulvany, principal of Alexan Dublin, and other writers. The publishers Browne and Nolan, Ltd.

WELSH.

IN the House of Commons, Mr. M'Kenna ha assurance that the institution of a Welsh Dep Wales will not lessen the grants for intermediat in the Principality. Mr. M'Kenna states that grants will be earned by the schools; and the t paid to the schools in respect of all pupils in be the full share which Wales is entitled to proportion to the grants paid in England.

GREAT dissatisfaction has been expressed by eight of the schools in the Pontypridd district of regulations proposed for the coming winte the evening classes. These teachers decline to u continuation classes unless they are reassured o The grounds of complaint are said to be dil payment of teachers' remuneration by authority, and that the authority had not refun their entrance fees when they had made t attendances. Eventually a resolution was pas Pontypridd Committee requesting the teachers their complaints.

IT appears that in connection with the Swa tary Schools the managers now claim to ha sufficient playground accommodation for 9 This will involve an expense of between £3,000. The total sum still required for the Swansea Church Schools is put at £5,000.

BARRY is well known for its enterprise in The new Gladstone Road Council Schools hav pleted at a cost of about £17,000. Th accommodation for 1,200 children. The sch scribed as the best in the town, and among equipped in the Principality. Barry is said t pended nearly £150,000 upon its elementary the Gladstone Road new schools, the class designed to accommodate from forty to fifty the boys' and girls' departments, and a cla infants for thirty-six.

MR. TOM JOHN has directed attention to th conditions under which the Pontyclun non-provi are conducted. Mr. John's letter is accomp long statement of facts relating to the staffing ing of the schools. As regards the staff, he that continual changes are taking place, and several cases in proof. His Majesty's inspecto on May 5th, 1905, pointed out that "the staf strengthened immediately by the appointment one assistant," and for twelve months nothin beyond sending four supply teachers from all county for thirty attendances. From a teachi view, Mr. John says, "this was absolutely As regards furniture, apparatus, &c., his M spector, in his report in February, 1905, said: " is ill-equipped with reading books and maps. map of Europe, and the map of England an

red that it is useless for teaching purposes." says these articles had been applied for by the er, who made a further application in March me year, without result. In May, 1905, his inspector reported that "the desks are in- nd rickety"; and Mr. John adds: "The state niture is so bad that no description will do it he head-teacher wrote to the secretary of the ation authority on May 8th, and again on 1905, pointing out the condition of the desks, d had been hurt through a loose seat falling on and that a boy was away from school from to June 12th on account of blood-poisoning, a splinter from a worn-out seat entering his lay, 1907, a seat with six boys on it fell, the e child being under the seat. At the present of the children have to sit on the floor. All een done during the last four years to improve ccommodation has been to send eight second- s from a council school. Of those, two were —one was in pieces."

ECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Un Moraliste Éducateur. Publié avec une préface Bourgeois. By M. P. Bourgain. viii+386 pp. 3 fr. 50.—This charming volume should be interested in the improvement of our educational n. Here we have sketched by one of his most pils the biography of the man who was more than anybody else in the transformations effected public education in the latter half of the nine- ury. Two-thirds of the book are devoted to the the organisation of elementary education and adults and technical schools when Gréard was de l'Enseignement Primaire de la Seine, and orms in secondary and higher education while lecteur (1879–1902). The writer convinces us that Gréard was always superior to the task in act, he would appear to have cherished obstacles, he who declared that "pour l'administrateur, tés sont le ressort de l'action." Especially is the balance Gréard seeks to maintain between ns of the classic and modern sides, and his evolving syllabuses answering "à la fois aux périeurs de la culture générale et aux nécessi- tes de la vie contemporaine." A few glimpses private life at Villers-sur-Mer form the subject ite chapter.

lene Vogel and other Tales. By Walter Ripp- +88 pp. (Dent.) 1*s.* 4*d.*—The five stories of simplified text is given in this German reader en's "Nightingale" and "Pinetree," Grimm's ird," Hauff's "Kalif Stork," and the Japanese Urashima Taro, the Fisher Lad," which Prof. has himself done into German. An English f this story appears in "The Japanese Fairy- piled by Yei-Theodora-Ozaki, and published by nstable and Co., Ltd. The text of the book is thirty sections, and a very instructive set of given in each section. The stories provide easy ting reading for young students of the German Prof. Rippmann has reduced the teaching of a fine art in his (new) First German Book and , and the two books together represent methods of modern language instruction in their best educational form. A few appropriate pictures would have added to the attractiveness of the Reader.

Le XIXe Siècle. Napoléon Bonaparte: Les Facultés Maîtresses. Par H. Taine. *Caractères Généraux de la Civilisation Moderne.* Par A. Rambaud. Edited by H. Cammartin and C. E. C. Hanbury. 62 pp. (Dent.) 6*d.* net.—This book forms vol. i. of the "Extracts of French History for Fourth Year Pupils." After being promised illustrations where possible, it was disappointing not to find a map. Both the text of "N. Bonaparte" and the notes on it need thorough revision. The most glaring error appears on p. 5, where note 4 explains *partant de* as equivalent to *basé sur*, an elucidation as absurd as it is incorrect. More care has been taken with the second part of the book, which is a reproduction of the chapter in the author's "Histoire de la Civilisation Contemporaine en France." Exercises on the usual lines follow the fifteen sections into which the book is divided, and a list of books worth consulting is supplied.

Classics.

A Victor of Salamis: a Tale of the Days of Xerxes, Leonidas, and Themistocles. By W. S. Davis. x+450 pp. (Macmillan.) 6*s.*—Most of us have suffered in our young days from Bekker's "Gallus," which pretended to be a story and was a very different thing: we may also have read other attempts at making the classic ages live, attempts more or less successful, but always suggesting the powder under the jam. Here at last is a really interesting story of the days of Salamis. The author has chosen a great time, when events moved fast; and he has introduced us to several of the phases of Greek life—the Games, the Panathenaic Procession, Thermopylae, Salamis, Plataea, a sea-chase, a kidnapping. All these show the lively and adventurous side of life: there are only hints of such things as the law-court and the ecclesia, and nothing about the drama, or country life, practically nothing about life in the home. But the episodes chosen are just such as will interest the young. The hero also is taken to the Persian Court, and sees the Persians at home; and our author has been successful in enlisting our sympathies for the enemies of Greece as human beings. He has been very merciful with the powder. Most of it comes in naturally, and a reader will certainly carry away something of the atmosphere of ancient life; very rarely do we feel that a sentence or two comes under the head of useful information, since this is usually involved in the story. It is a very great pity, when the book has been planned so well, that it is full of mistakes in elementary Greek. Take these: *philotate* (m.), *philotata* (f.), *makaire* (m. voc.), Orchus, Zeus Orchios, *Bœdromion*, Lysistra, Cylene, Pollicharmes, Morae (the Fates). There are also anticipations of modern Greek, or at least Hellenistic, as *kyrie* (once for *despota*, often for sir), Daphni (between Athens and Eleusis), Alpeni; and an occasional Americanism, as *back of* for *behind*. The Persians also use the word *dæva* for *daeva*, which is trisyllabic in Zend. We also read ΦΟΙΝΙΞ ΤΙΟΣ ΓΑΑΥΚΟΝΤΟΣ. A Greek scholar could easily have corrected these on the proof. The opening scene, again, is rather Newmarket than Greece, with its bookies and its odds. It is perhaps out of place to expect any great subtilty in characterisation; for the most part the characters are a little wooden, and the treachery of Democrates is crude; but an exception must be made for Phormio the fisherman and his shrew of a wife—there is a specially delightful touch on p. 146,

for which much may be forgiven. But after all the story is the chief thing, and that certainly moves and holds the reader.

The Book of Isaiah according to the Septuagint (*Codex Alexandrinus*). Translated and edited by R. R. Ottley. II. Text and Notes. xxxiv+418 pp. (Cambridge University Press.)—The study of the New Testament is, we are glad to see, being carried on more intelligently than it used to be. We do not here speak of scholars, although even they have had to bear the blame of isolating New Testament language from contemporary literature and thought, but of the schoolmaster and the schoolboy, and of the average university man. It was admitted at least that the Septuagint ought to be studied; yet there were few helps for the student even for that. Now, thanks to the work of the Cambridge scholars, the text of the Septuagint is being sifted, and, at the same time, something is being done to enable the ordinary student to understand it. We reviewed lately an excellent selection published by Messrs. Ginn, and this edition of a difficult book receives a hearty welcome. The introduction discusses with learning and good sense the genesis of the Septuagint. Mr. Ottley does not place high the value of the text as an aid to the criticism of the New Testament, but it has its value, neverthless. As to the Greek style, new discoveries will probably modify his opinion that the version had little help from the literary men of the city, especially as he already sees that the translators were not profound as Hebrew scholars. The version of the Pentateuch, he remarks, deserves special respect. As a basis of the text in this edition, he takes A, adding the chief variants of B, with a selection of variants from the cursives, which he classes provisionally as Hexaplaric, Hesychian, and Lucianic. The commentary breaks new ground, as there is practically nothing available for the ordinary student; and it includes subject-matter, language, and text, with especial regard to the relation of this text to the Hebrew. In his interpretation, the author takes his stand boldly as a defender of predictive prophecy, and in particular refuses to explain away the allusion to Christ's birth in 7^{14}. He does not notice, however, the suggested interpretation of "the virgin shall conceive," which might have been said of any woman and her firstborn, and need not imply a virgin birth in the accepted sense. The illustrative notes are very full and interesting, and the book is certain to be useful.

Herodotus IV. to VI. Translated by G. Woodrouffe Harris. 165 pp. *Plutarch, Lives of Sertorius, Eumenes, Demetrius, Antonius, Galba, Otho.* Translated by W. R. Frazer. 244 pp. (Swan Sonnenschein.) 3*s.* 6*d.* net each.—Much the same must be said of these volumes as of those which preceded them. We do not feel confidence in Mr. Harris as a translator. Take, for instance, the story of Heracles in iv. 8 ff. The sentence *τὸν δ' ὠκεανὸν λόγῳ μὲν λέγουσι ἀπὸ ἡλίου ἀνατολέων ἀρξάμενον γῆν περὶ πᾶσαν ῥέειν, ἔργῳ δ' οὐκ ἀποδεικνῦσι* appears as follows: "The ocean, of course, has its source where the sun rises, and circumvents the whole world. This is merely theoretical." Chap. 9: *ἵππους μὲν δὴ ταύτας ἀπικομένας ἐνθάδε, ἔσωσά τοι ἐγώ, σώστρά τε τὺ παρέσχες. ἐγὼ γὰρ ἐκ σεῦ τρεῖς παῖδας ἔχω·* "I kept these mares that came to me, but you have paid for their keep. I have three children by you." Besides the mistranslations, the relation of the thoughts (*e.g.*, *γάρ*) is lost here and elsewhere in the story. In chap. 12 we read of the city "Sinopis"; in chap. 14 *τῶν ἀστῶν οὐδενὸς γένος ὑποδεέστερον* is rendered "whose family was in no way inferior"; in chap. 16 *φαμένου* is omitted; in chap. 17 *ἀροτῆρες* is rendered "menial"; in chap. 23 *ζῶντες ἀπὸ δενδρέων*, "livers on trees," Harris says they "devour." Enough has been s book. The Plutarch is better done, and we a anything which may induce people to read Plu the style is commonplace. Each of the books has that of the Plutarch being fairly full (12 pages).

Excerpta Brevia. By W. H. S. Jones and Smith. Text, 88 pp.; vocab., 51 pp. (Blackie.) This is a collection of Latin passages in two part contains in fifteen pages thirty short extr Catullus, Martial, Ovid, Vergil, Cicero, Livy, Pliny, "suitable for learners on their first intro a Latin text after a year's course, such as tha Scott and Jones's 'First Latin Course,' on t sentence." Part ii. consists of thirty-nine longer difficult passages covering a wider range of aut are mainly historical, and their leading idea is why the Romans were a great people." The s attractive and interesting. All vowels long by marked as in Blackie's Latin Texts. There are, some oversights—*e.g.*, *āc* is several times left and the first vowel of *posco* is short. The pref of a blank page for teacher's notes, but the such in the book. We prefer references to aut given with each extract rather than, or as w together; we have made no attempt to v generally, but 2 should be Catullus 49 (not 1 pertius V. 1 (not IV. 1), and Tacitus *Germ* be more satisfactory than *de situ* for 63. Ther omissions in the vocabulary; *e.g.*, *licens* an (both on p. 84); and where does *arvum*, a wee in Latin in the singular? The marking of lo necessitates giving fuller forms of the parts of s *e.g.*, *fingō*, *-ere*, *-nxī*, *-ctum*, is not satisfacto perfect. The first vowels of words like *magnus* are marked long, as in Blackie's Latin Texts however, no conclusive evidence for this; and be go too far the Classical Association should ruling on this and other moot points.

Caesar, Gallic War, Bk. VII., xi+56 pp W. H. D. Rouse. *Virgil, Georgics, Bk. II* pp.; *Bk. IV.*, xvi+19 pp. By S. E. Winbolt. 6*d.* each net.—These editions of Blackie's Latin only complete Dr. Rouse's edition of Caesar's and Mr. Winbolt's Virgil, but also the whole present advertised. We have noticed few mist marking of the quantities; they occur in Geor vv. 103, 344, 435, and 542, and in IV. in vv and 514. The chief ones in the Caesar are: *ŏm quīntis* (36. 1), *fēcerit* (38. 10), *Haeduŏs quantŏpere* (52. 3), *recipiātur* (66. 7), *consobri ā* (82. 1). In c. 35 the MSS. reading *captis* a *carptis* should have been given in a critic *correptis*. The introduction (p. vii) might ha clear that only a summary of Bk. VII. is gi is an improvement in the note on *Synizesis* i duction of the Georgics, but several other await correction.

English.

The Poems of William Dunbar. Edited Baildon. 395 pp. (Cambridge University P This is one of the many books which have b for a long time. No edition of Dunbar has curable by the humble student; and an introd as Mr. Baildon's, which is mainly phonologic necessary than biography, history, or criticis it is a mercy to be rid of them; and the stud

ation from a good library. The "Lament for ris," the "Thrissill and the Rois," and the f the Sevin Deidly Synnis" are perhaps known anthologies. But with this volume it is possible ie's own opinion on Dunbar's debt to Chaucer irns's debt to Dunbar. Perhaps in a second . Baildon will give us a little more in the way iphy, and a note on early Scottish poetry. The id notes are admirable; of course, the book is :hool classes, though Dunbar's philosophy is

ff warldis gud and grit richess
uhat fruct hes man but miriness?
Thocht he this warld had eist and west
ll wer pouertie but glaidness:
For to be blyth me think it best."

wth of English. By H. C. Wyld. 199 pp. 3*s.* 6*d.*—This book, like everything else on om Prof. Wyld, is thorough, accurate, and The first seven chapters are phonological and and they are, unlike such chapters in the usual te elementary. Teachers will object that no anscript is used; and, indeed, faster work will ɔe accomplished with one of Dr. Sweet's but our author has purposely omitted in this ɔk the transcript used in his larger book. The not, in chapter vi., escape criticism, for he have drawn on his own experience only, a ng for a phonetician when dealing with changes -day. The second half of the book is historical, a good introduction to larger volumes. It is English philology as a class subject will ever now that examiners are fighting shy of it, always be fascinating to the student. The e its elder sister, has no index.

oks, which are part of a series and deal sh literature from 1625 to 1780, are sent by r. They are all prepared by Mr. Edmunds and r. The first is the "Story of English Litera- 6*d.*), and it acts as a guide and critic for the s accompanying volumes are "Readings in erature," senior course (3*s.* 6*d.*), intermediate nd junior course (2*s.* 6*d.*). The longer books ɔut 350, the shorter about 250, pages. The d the extracts are both admirably done; it does ı us quite clear whether or not the student who ese books in turn is supposed to dip into the hree times as he reads his three readings, but ɔe clearer in practice. Perhaps it would be interests of the schoolboy and schoolgirl to or two when biographers and critics vary in their estimates of men and books. Defoe, ucer; what vehement praise and dispraise, and condemnation, are called up by these three it well to let the young person think that l and does condemn Defoe, admire Swift, and ucer? Better to say plainly that our criticism decade, hastening to the judgment seat of Very little criticism is final.

C.K. is in the market bidding against the ker; and it is time that someone tried to reading youngster. We have before us the 'artoon" (A. Clare), "The Pirate Slaver" gwood), "Sail Ho" (G. Manville Fenn), id Cruisers" (S. W. Sadler), and "Born to (Gordon Stables). All are illustrated, attrac- :, and 6*d.* each. Probably the books are intended for the schoolroom, but the cheap school library ought to have them too. Unfortunately, not all our schools have libraries, not even cheap ones. There is not enough money in all quarters to spend on essentials.

The Main Tendencies of Victorian Poetry. By Arnold Smith. xiii+208 pp. (Simpkin Marshall.) 5*s.* net.—This book is the outcome of a course of university extension lectures, and its pages contain much matter that has been scattered through recent critical volumes dealing with our later English poetry, lucidly and popularly put. Though the volume contains little that is original, it nevertheless sums up recent thought in a comprehensive way. Optimism, hope, intellectual doubt, pessimism and revolt, and neo-romanticism are the main tendencies discussed by the author; and he criticises in turn the work of the Brownings, Tennyson, Clough, Arnold, Edward Fitz-Gerald, Swinburne, Rossetti, and William Morris. Especially interesting is the analysis of the work of Mr. Swinburne, as the poet of the sea, of childhood, and of patriotism. The book will be both welcome and serviceable to those students of the literature of the last century who are feeling their way towards a complete grip of the prevailing philosophies of the period.

The Major Dramas of Sheridan. By G. H. Nettleton. cxvii+331 pp. (Ginn.) 4*s.*—Here we have a fine edition of "The Rivals," "The School for Scandal," and "The Critic." Mr. Nettleton has gone to Mr. Fraser Rae for his biographical introduction; but so well has his own work been done that this volume is worthy of all attention for its own sake. In the purely critical matter the editor has been careful to study Sheridan's plays in the light of contemporary evidence. He tells us that more than a thousand volumes of eighteenth-century memoirs, diaries, novels, essays, poems, newspapers, and magazines have contributed to this result; and this editorial labour has produced a noteworthy contribution to the literature which deals with Sheridan's work. The æsthetic element in Mr. Nettleton's criticism also deserves commendation; he has taken great pains to resolve Sheridan's work into its constituent elements, and we think he has succeeded admirably; and his method of dealing with the comparison of Goldsmith with Sheridan is worthy of attention. The notes are full and well done. The volume deserves to be widely and appreciatively used.

Mathematics.

Intermediate Hydrostatics. By William Briggs and G. H. Bryan. viii+264 pp. (Clive.) 3*s.* 6*d.*—It is somewhat difficult to treat the subject of hydrostatics mathematically without the aid of the calculus; apart altogether from the symbolism, the fundamental idea of a limit is required at a very early stage and cannot be ignored without a sacrifice of clearness. At the same time, a considerable part of the field may be traversed in a fairly satisfactory way if the leading definitions are carefully stated and explained and full use is made of elementary experimental results. No direct appeal to the calculus is required in readers of the book under notice, and the amount of mathematics demanded may fairly be ranked as elementary. Subject to these limitations, the range of topics discussed is very wide; the exposition is generally clear and accurate, and the number and variety of fully worked examples make the book specially useful for those who are studying without the guidance of a teacher.

An Episode of Flatland; or, How a Plane Folk Discovered the Third Dimension. To which is added an Outline of the History of Unæa. By C. H. Hinton. ii+

181 pp. (Sonnenschein.) 3s. 6d.—No one need be deterred from reading this book by the suggestion of mathematics contained in the title, as its connection with that subject is of the slightest. However circumscribed in their physical movements the inhabitants of Flatland may have been, they show a wonderful similarity in their moral and intellectual characteristics to those who live and move and have their being on the surface of our globe, and the society of Unæa has many points of contact with that of modern Europe. The process by which a knowledge of the third dimension was reached is chiefly interesting from the resemblance it bears to the struggles that have transformed the social conditions of our own age. The reader may be quite unable to understand the Unæan mythology, but he may nevertheless derive some intellectual stimulus from a study of the "Episode of Flatland."

Text-book on the Strength of Materials. By S. E. Slocum and E. L. Hancock. xii+314 pp. (Ginn.) 12s. 6d.—Though books on the strength of materials suitable for readers whose knowledge of higher mathematics is only moderate, and whose interests are centred chiefly in the applications of elastic theory, are fairly well represented in engineering literature, their number is not so great as to make a new text-book superfluous. In the book before us, the range of the subjects treated, especially in part ii., which deals with the physical properties of materials, is wider than in most, if not all, of the text-books in common use; and the exposition of the more mathematical portions, as well as of the more directly practical, is of a simplicity that will bring the discussions well within the reach of engineering students who have a fair knowledge of elementary calculus. In the practical sections an effort is made to meet the needs of students whose mathematical knowledge is very small, so that the book may appeal to a fairly wide constituency.

An Elementary Treatise on Differential Equations. By Abraham Cohen. ix+271 pp. (Heath.) 5s.—The subject of differential equations has in recent years assumed dimensions that are often felt by the mathematical student, and more especially by the student of applied mathematics, to be really formidable. At the same time, the types that are of most importance in physical or mechanical applications are comparatively few, so that a book treating of the more frequently occurring types in the spirit of modern methods and of moderate size is of real value to students. These demands are fairly met by the little book before us. The selection of material has been made in view of the general needs of a student of pure and applied mathematics, the ordinary methods of integration are presented in a lucid form and illustrated by numerous examples, and attention is directed to the leading general theorems that depend for their proof on function theory, and, though not proved in the book, are yet stated to act as a guide to the student. Useful references to authorities are frequently given, and the book is furnished with numerous examples for practice, the answers being given at the end. The book will be found to be of real value for all beginners in the subject, and to be probably quite full enough for many students of applied mathematics.

A New Geometry. Part iii. By S. Barnard and J. M. Child. ix+307-408 pp. (Macmillan.) 1s. 6d.—This volume forms the third part of the "New Geometry for Middle Forms," noticed in the September number (p. 357); it contains "the substance of Euclid, books ii., iii., 35-37, and the harder parts of iv., together with additional sections."

Five Thousand Arithmetical Examples and Compiled by R. W. K. Edwards. xx+364+ 60 pp. (Arnold.) 3s. 6d.—This collection of e stated in the preface to be arranged so as to fo supplemented with proper oral teaching, a compl of arithmetic for those who have been through tl tary stages. The papers set in the examinations by the chief examining bodies have been large upon for examples, and there can be few type questions that are omitted. Special importance have been laid on approximations. The book se very suitable for pupils who are preparing for a public examinations.

The Beginner's Arithmetic. In two parts vi+200 pp. (Heath.) 1s.—This book is drawn u now generally accepted as suitable for begin concrete and the familiar are in evidence throug the handling and measuring of actual objects forn sary part of the course. Teachers in search of a could profitably be put into the hands of very yo would do well to examine this one.

Pitman's "Proficiency" Arithmetics. Parts (Pitman.) Each, paper, 4d.; cloth, 5d. Also each, cloth, 4d. net.—These little books are ad the "Method" Arithmetics (in Scheme B orde the requirement of Schedule VI. of the Code of treat of simple and compound quantities, decimal fractions, mensuration, proportion, and p the work included in each part being adapted to sponding stage.

Science and Technology.

The Complete School Chemistry. By F. M. 416 pp. (Methuen.) 4s. 6d.—It is of much ad the young student of chemistry if his text-boo all that is required for his work both in the and in the laboratory. In this volume the endeavoured to meet this requirement. It is by the first published volume which attempts to do many of its predecessors have not stood the te partly on account of the difficulty involved in ing" satisfactorily the theoretical instruction an tical directions. The author has followed the of collecting the experiments at the beginnin chapter, and presenting the theoretical work tinuous form in the remainder of the chapter. chemistry is a subject which does not lend its to any other course. In subject-matter and tre volume is eminently successful, and the illustr novel, simple, numerous, and well executed. Th to which the book is written renders it well su requirements of candidates for the London M and Army Entrance examinations.

Heat Shadows. By W. Jamieson. 30 pp. 6d.—Many teachers must have found difficulty i for the lecture-room or the laboratory, suita ments on the conduction and radiation of heat will find this little book of much assistance. of about fourteen experiments of a comparati character, the chief requirement being a special paper which is sensitive to heat. As the pa used over and over again, the outlay on mater paratively small. The author has submitted to specimens of the paper with the reverse sides different tints; we find that, on exposing th surfaces to bright sunlight, the different absorp of the colours are clearly evident.

ıry Electrical Engineering. By J. H. Shaxby. (Blackie.) 3*s.* net.—This book is written to meet the needs of artisans who are anxious and the principles of the electrical machinery y are handling every day. The author pre- ıo knowledge of the theory of magnetism and and the earlier chapters are devoted to a brief of this preliminary work. The chapters on the pplications of the science are quite satisfactory ds of the students for whom the book is in- t we consider that the small size of the volume impossible for the preliminary stages of the receive adequate treatment; and a much more tudy of fundamental principles would tend more intelligent knowledge on the part of the

d Year's Course in Practical Physics. By J. 148 pp. (Bell.) 1*s.* 6*d.*—This consists of a d series of fifty experiments on heat, together twenty experiments on solution, crystallisation, of the descriptions are followed by a number exercises or questions of a practical nature. nal interest is given to the volume by the inser- eral novel experiments on conduction and radia- ed by Mr. W. Jamieson, whose little book is p. 398 of this number. We may take this to express our appreciation of the fact that nost invariably acknowledge the source of novel s which are worthy of adaptation; in the pre- ıe we notice one experiment which bears no gment, and to which this favour might have ed.

ic Practical Organic Chemistry. By G. M. 98 pp. (Clive.) 1*s.* 6*d.*—This book is intended e requirements of the new syllabus of the Board ion in practical organic chemistry, Stages I. The examiners now require evidence that a has carried out a number of the simpler pre- and this requirement is well met by the series ıtions described in the later chapters of this A distinctly novel and useful chapter is that th the "Determination of the Class of a Sub-

Round the House. By Patten Wilson. xii+ Longmans.) 2*s.* 6*d.*—Considerable literary skill in these nature readings for children, and the s, by the author, are altogether delightful. The ıins a few slips: *e.g.*, the spider is referred to ct, and bees are said to belong to the family

Pedagogy.

Course of the History of Education. By P. 409 pp. (Macmillan.) 5*s.*—This is a con- of a larger book, and it takes us from the of primitive peoples to that of the Greeks, Middle Ages, and Renaissance. It then turns to ısseau, Herbart, the scientific and the sociological , and ends with a chapter on eclecticism. A the book is the delay of the writer to attempt education until the last page; he sees that, as the history of the subject is, instruction is f decade, country, and national characteristics: aisement of the values of life must change from to generation . . . the formal statement of the f character must remain much the same; the concrete content must vary as life varies." The problem is ever solving, never solved. The book has many illustrations; we could have asked for more, and especially more from the histories of England, France, and Germany. Tarsot's "Les Écoles à travers les Âges" and Carlisle's "Grammar Schools" would have supplied some. The great value of these books is that they show how abiding is the doctrine of Aristotle, Plutarch, Pestalozzi, and how changeable is the world's request made to the schools. Instruction and the theories about its progress vary; education, at any rate until now, has held to the cry expressed in varied words:

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For good or evil, we follow the sweep of the unseen forces; and you must criticise nations rather than schoolmasters.

The Principles of Intellectual Education. By F. H. Matthews. 138 pp. (Cambridge University Press.)—This book contains chapters on the aim of education, the training of the senses, the humanities, special subjects, and the like. Mr. Matthews is, we take it, an enlightened conservative; for he would make all his work interesting, and yet keep his time-table laden. Nevertheless, he seems to loathe examinations, and he boldly says: "All education has a tendency, if not carefully checked, to kill that spontaneity of outlook and judgment which makes the original minds of the world." For "education" are we to read "instruction"? The book is bright from cover to cover; but it deals with a corner only of the field of education.

Methods in Teaching. By Rosa V. Winterburn. 355 pp. (Macmillan.) 5*s.*—This is an exposition of the methods used in Stockton, California, and the book is the response to many requests from American teachers. Mrs. Winterburn is the editor of the various monographs. These monographs seem to be held together by a plan; and, indeed, organisation is the most crying need for any community anxious to instruct its children on right lines. Where large classes are necessary, teachers teach small sections only: the rest of the class are working by themselves, *i.e.*, are learning instead of being taught; interest, of course, lies at the root of all; free intercourse between child and teacher is necessary; original thinking, writing, drawing, are encouraged; and, to sum up, common sense is used. It has been maintained before now in this magazine that the guide, headmaster, or leader (call him or her what you will) of every school is the person, and perhaps the only person on the premises, who should be required to know the history, theory, and modern practice in education; very often, in England at least, he is the one person who could pass no examination in such subjects, while his assistants have each his own smattering. We notice that, notwithstanding the money freely spent and the wise enthusiasm of the teachers, the American child leaves school as soon as he can and trusts to the learning of the streets, and that when he does leave he cannot add and multiply. It is a question which we should like to see debated among our best primary-school teachers—whether or not we should prepare wage-earning children better for life by teaching them in classes of six or ten, and by freely allowing parents to remove them at the age of thirteen. No word (except for two pages on drill) is said in the book before us on the care and training of the body, on which, as on a pivot, turns the whole machine.

CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD *will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

Matriculation Mechanics.

MAY I be permitted to direct attention to one or two questions set at the June, 1907, matriculation examination in mechanics of the University of London? There are eight questions in all. Of these, six are of the ordinary physical-mathematical order, which would elsewhere be described as theoretical mechanics. Two have some reference to practical matters, and are here selected for criticism. Question 4 reads:

"Explain the terms *kinetic energy* and *work*. A fly-wheel weighing 100 lb. is 7 feet in diameter, and makes 15 revolutions per minute. Assuming the whole of the weight to be concentrated at the circumference, find the kinetic energy in ft.-lbs.

"Can you suggest a method of converting this energy into potential energy?"

The principles involved would have made this an excellent question had the dimensions given been at all approaching what is found in practice. For a wheel 7 feet in diameter, a weight of 800 lb. to 1,500 lb., and a speed of from 90 to 200 revolutions per minute, would be reasonable.

In view of the ignorance of practical matters displayed in the early part of the question, it would be of interest to your engineering readers to learn what would be the examiners' solution to the last part.

Question 6 is an example in statics. An inclined heavy bar is supported in a certain way, and candidates have to find the supporting forces. Whether the bar is supposed to be uniform or otherwise is not stated, and the candidate is needlessly hampered by the fact that the weight of the bar is not given.

Most students who intend to proceed to a degree in engineering would naturally take mechanics at matriculation. Many such, especially evening students, have a considerable knowledge of practical matters before presenting themselves for examination, and are not likely to be favourably impressed by being compelled to answer absurd questions. Such questions are not likely to appear in the intermediate and final examinations in applied and pure mathematics for B.Sc. (engineering). Here the examiners have the co-operation of Dr. Willis, who represents the engineering faculty, thus ensuring that questions of a practical nature will not serve as a source of amusement to practical men.

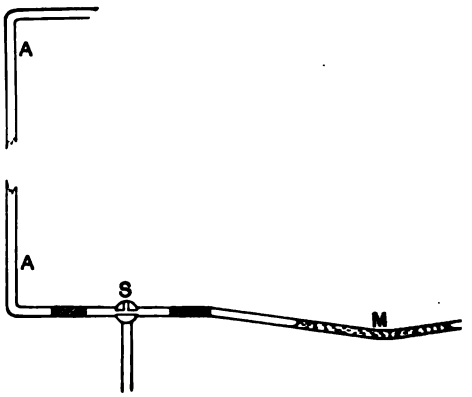
I venture to submit that the same means which have been adopted by the University in order to procure suitable questions in the higher examinations might with advantage be applied to the matriculation mechanics. The alternative seems to be that examiners who have no practical knowledge should avoid questions of an applied nature.

A.M.I.MECH.E.

The Difference of the Densities of Two Gases.

THE method of balancing columns in a U-tube for comparing the densities of two liquids can be applied to the determination of the difference of the densities of two gases. The following description of an apparatus is suitable for finding whether the density of a gas is greater or less than that of air.

A tube, A, of a length as great as the height of the room will admit, is bent at right angles at a d a few centimetres from each end, and is suppo vertical position. The lower extremity of the t connected up with a three-way tap, S, in suc that the tube A can be put into communica either the supply of gas or the sensitive mano The manometer, M, consists of a tube, with a about 3 millimetres, bent at the centre and suppo the two limbs equally inclined at a small ang horizontal. The tube of the manometer is t cleaned, and a quantity of coloured xylene or introduced so as to give a thread of liquid abou long. The tube A is put into communication manometer, and the position of the thread of marked by an index. The tube A is filled with and connected to the manometer. The thread will move to the right or left according as th heavier or lighter than air. If the vertical tu 4 metres long, and each limb of the water mano a slope of 1 in 20, then the introduction of hyd



to replace the air in the tube A will cause the liquid to move through a distance of about 5 cm

The difference of the densities is $\frac{hd}{l}$ grams

where h cm. is the vertical distance between th of the liquid in the manometer, d grams per c density of the liquid, l cm. is the effective verti of the column of gas in tube A.

Experiments of this kind were first made l January, 1906; and I hope, by using a more form of manometer, to be able to apply the meth determination of the density of a vapour.

Canterbury. F. W.

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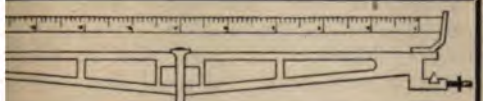

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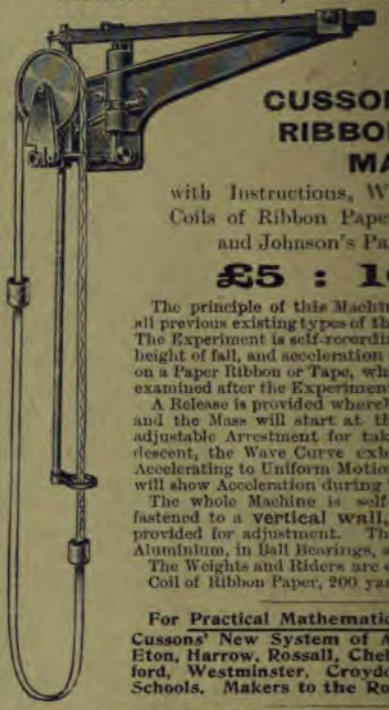

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(3) For every new class of numbers, a set of new definitions relating to equality, inequality, and the operations of addition, subtraction, multiplication, and division must be given.[1]

In each case, it will be found possible so to define the new operations, that they are subject to the same fundamental laws as the corresponding operations with natural numbers. This scheme determines the general method of treatment of the subject; we proceed to fill in some necessary details, and to draw various conclusions.

In the first place we note that algebra is part of the science of abstract number. The properties of abstract numbers should be established without reference to concrete magnitudes; this is contrary to the usual method. Instances will be given to show the unsatisfactory character of processes where the reasoning proceeds from the concrete to the abstract.

Next, it is essential that the fundamental operations in the case of the natural numbers should be defined, and the laws which govern these operations investigated. Seeing that these laws depend on the axiom (or law) "Number is independent of the order of counting,"[2] this statement is the correct starting-point. To go back beyond this is to trespass on the domain of the psychologist and philosopher.[3]

Continuing with the scheme, the "new" classes of numbers 0, -1, -2, &c., and $\frac{2}{3}$, $\frac{3}{4}$, &c., will be defined, without reference to concrete quantities, as providing values of x which will in all cases satisfy the equations $x+a=b$, $ax=b$. The explanation necessary in each case is extremely simple, and the method may be contrasted with the following attempt to reason from the concrete to the abstract:

Any quantity with the sign + prefixed, or understood, is called a positive quantity, and any quantity with the sign − prefixed is called a negative quantity.

Negative Quantities.—Arithmetically we cannot subtract 6 from 3; *i.e.*, the expression $3-6$ has no arithmetical meaning. In algebra, however, such an expression has an intelligible interpretation. This is best seen by considering a few examples. If a farmer buys 7 cows, and sells 4 cows, he has 3 *more* than he had at the start. On the other hand, if he buys 4 cows, and sells 7, he has 3 *less* than at first.

We express this algebraically thus:

$$7 \text{ cows} - 4 \text{ cows} = +3 \text{ cows}$$
$$4 \text{ cows} - 7 \text{ cows} = -3 \text{ cows},$$

&c.

Here, the subject of "cows" is (perhaps wisely) dropped. An opportunity has, however, been given to the "intelligent" youth to put some very awkward questions, as, for instance:

You said that the farmer bought 4 cows and then sold 7. How did he manage this? If he had none to start with (and you do not say that he had any) I shall be obliged to conclude tha some. Did you ever see or count -3 " -3 cows" a quantity? Does the n denote subtraction? If so, what are the be taken *from*? If the + and − in your a not denote addition and subtraction, then that $+3$ cows is a positive quantity and is a negative quantity, so that + and opposite *qualities of some kind.* Wha property is possessed by a negative cow? the average price of one?

Reverting to the scheme, we see that tion of adding a negative number must b The necessity for this will appear if we the method adopted in the following ex

$8+(13-5)$ means that to 8 we are to add t 13 over 5; now if we add 13 to 8 we have much, and must therefore take 5 from the res

Thus $8+(13-5)=8+13-5=16$. Similarly, means that to a we are to add b, diminished b

Thus $a+(b-c)=a+b-c$.

The "intelligent" youth puts questio does the word "similarly" mean? May a, b, c any values I please; for instan put $a=3$, $b=3$, and $c=5$? If so, I a clude that just as $8+(13-5)=16$, in the $3+(-2)=1$. Is the following definitio expression $3+2$ correct? $3+2$ denotes number used in the following process of c Start with the number 3 on the natural s count two *more* (4, 5). Can you give a tion of addition which is not equivalent To find the value of $3+(-2)$, I must start with the number 3 on the scale, a (-2) numbers forward. How am I to c numbers? I could not count (-2) cows. you mean I am to count two symbols b only know one definition of addition, and me to count forwards.

It will now be obvious that $3+(-2)$ found *by counting*. Neither can it be f *metrically* (for this method means that length or area are to be *counted*), nor by to any concrete magnitude, unless som tion is made which is foreign to ideas with abstract number.

The nature of such an assumptio evident from the following illustration:

If a gain of £3 is denoted by +3, then a is denoted by −2. It *seems reasonable* to de of £3 *taken with* a loss of £2 by $3+(-2)$. to do this, then $3+(-2)$ means the result of 2 from 3, and we conclude that $3+(-2)$ mean $3-2$.

This example exhibits the method ployed to *prove* that $3+(-2)=3-2$. T in italics are omitted, the assumptions a over, and our notions with regard to shillings, and pence are used to *prove* a of abstract number which, logically, is of proof.

Here is the correct method: the e $3+(-2)$ is *defined* to mean the same as in order that the equality $a+b=b+a$ n

[1] See "Encyclopédie des Sciences mathématiques."

[2] Clifford, "The Common Sense of the Exact Sciences." Referring to this axiom, the "Encyclopédie des Sciences mathématiques" says, "L. Kronecker et H. von Helmholtz ont prétendu le démontrer."

[3] Dr. E. W. Hobson, in his "Theory of Functions of a Real Variable," says, "Mathematical science, as any other special science, must take its fundamental notions as data."

If it is hard to understand the meaning of (the number) 4 taken once reversed, it is three times harder to gather the sense of "4 taken 3 times reversed." Presumably the writer had in mind the taking of steps.

Now to take 4 forward steps reversed is an awkward expression; if we assume that it means to take 4 steps backwards, then 4 forward steps taken twice reversed must mean 4 steps forward.

If any meaning at all can be gathered from the method, it appears to be that

$$4\times(-3)=-12 \text{ and } 4\times(-2)=+8.$$

That the usual treatment of "division" is inadequate will appear from the following:

Ex.—Find the quotient and remainder when x^2+2x+3 is divided by $x+1$.

Ans.—Quotient $x+1$; remainder 2.

For all values of x, x^2+2x+3 stands for the same number as $3+2x+x^2$, and $x+1$ for the same number as $1+x$. If $3+2x+x^2$ is divided by $1+x$, the quotient is $3-x$ and the remainder $2x^2$.

To say that the expressions are arranged in descending powers of x in the first case, and in ascending powers of x in the other, does not sufficiently explain the fact that different results are obtained in the two cases.

Recent efforts to add interest to the subject of algebra have led to the abuse of "graphs."

The legitimate use of graphs in algebra appears to be:

(i) As a means of representing the variation of an algebraical function.

(ii) As *illustrating* various algebraical processes.

An abuse of graphs lies in:

(i) Time wasted (so far as the study of mathematics is concerned) over purely mechanical processes.

(ii) Attempting to *prove* algebraical results by means of graphs *until* it has been established that the position of *every* point on a locus can be represented by number.

CHEMISTRY AS A SCHOOL SUBJECT.

By J. B. COHEN, Ph.D., B.Sc.
Professor of Organic Chemistry, University of Leeds.

AMONG a certain section of teachers, instruction in general elementary science which shall include both physics and chemistry has long been advocated for schools. Whilst fully endorsing this view, I am also strongly of opinion that where a boy is destined for a scientific career, systematic chemistry teaching should be postponed until a foundation in the simpler branches of mechanics and physics has been laid. The following observations have been put together from my experience as an examiner rather than as a teacher.

Science may be regarded as a means or as a branch of education; in other words, as a study or as a discipline, and chemistry is held to embrace both. It is supposed to the powers of observation and to sha reasoning faculties, as well as to impa knowledge. Yet there is no other scienc perhaps, electricity, so full of mysteri doxes, and perplexities.

Let us examine some of these. At a v stage the study of the invisible is begun, study of gases, their preparation, and the ties. Let us suppose that the boy begi piece of marble or chalk, and finds tha weight on heating. He concludes natu rightly that something invisible has esc finds that whereas the substance efferve acids before heating it does so no lon invisible thing, or gas, he correctly comes from the chalk, and in some r way the acid removes it.

When he begins to experiment wit the same kind of way, which he will do, he finds that his previous knowledg of assisting him, misleads him. The in weight on heating, and, on treati acid, the gas (so he is told, for he discover it for himself) comes, not from as he would naturally have suspected, the acid solution.

This is a fair sample of the kind o with which the beginner in chemistry confronted. The discovery of such pitf stimulate the powers of observation, if t always be brought into play, but no observation enables the student to di the experiment just named, that the comes from the acid rather than from At this early stage he begins to rely on ment of his teacher. How many boys a proof that the hydrogen came from They might say that zinc, being an could not contain hydrogen, but the n nature of the metal would still res authority of the teacher.

Take another case. A boy studies paration of oxygen from mercuric oxi his previous information help him? If he weighed his red substance before heating, which, on account of certain difficulties, he usually omits, he w that, like chalk, it loses weight, bu chalk, it changes colour and becomes The process is the reverse of what happ zinc. A boy of acute intelligence woul the phenomena, and conclude that wha gained in the process of renouncing it properties, the red substance lost. Bu not finished with the problem, for he told, or possibly discovers, that mercur formed into the red substance on heatir is another bewildering paradox. A subs undergo two opposite changes when sul the same process.

The above are not out-of-the-way exar are chosen from those which a beginner perform. Nor are the perplexities, whi

avoured to set forth, imaginary. We have to look into the history of chemistry to be rinced of their reality, for we find that it took turies before the exact nature of the phe- ena manifested by these three simple experi- nts was correctly interpreted.

Passing by the curious contact phenomenon nected with the preparation of oxygen from assium chlorate and manganese dioxide, which es into every school programme, let us con- r the way in which the schoolboy is made to y the composition of water.

If he were allowed to remain satisfied with the covery that, when oxygen and hydrogen unite, er is formed, little objection could be taken he information acquired or the experimental ence on which it rested. He would burn ogen in oxygen, and oxygen in hydrogen, he d pass hydrogen over an oxide, and explode gases by an electric spark, and find that r was formed in each case. The proof is iently clear and convincing. But as a corol- he is usually made to learn the composition ater by weight and volume. He is shown by electrolysing water two volumes of ogen and one volume of oxygen are evolved e ends of two pieces of platinum wire. Let onsider this process for a moment. The boy troduced to a new and mysterious agency, electric current. His only previous experience t, in connection with chemistry, is probably ffecting the union of hydrogen and oxygen. now finds that in another form it can produce opposite result equally well. When he comes hydrochloric acid he learns the same thing, ely, that electricity in one form or another induce either the formation or the decomposi- of the same substance.

Henceforth the electric current becomes what Gulf Stream is in geography, a potent agent effecting anything which the boy is incidentally d upon to explain. The passing of a spark ugh a solution, or of a current through mixed s, does not trouble him; for his purpose the are synonymous. There is no compound gas I can recall that has not been described, at time or another, as either being formed or mposed by electricity. Ammonia, oxides of gen, hydrogen sulphide, hydrocarbons, &c., all been decomposed or combined. How le it is to determine composition by volume e aid of so handy an agent! The gas sepa- into the required number of volumes of its ponents, or the required number of volumes united by spark or current, and there is ing more to be said! This is all paper istry. Reason and observation have nothing th it. Why should water be converted nvisible thing called a current into the mber of volumes of the two gases of is composed, and why should they at the ends of two different platinum The schoolboy never really finds out, and, e only reaches the final explanation when s, at a much later date, that the current does not decompose the water at all. The process is mysterious, the explanation (if one is given) is unconvincing, and its effect is mischievous.

Confront a boy with an unusual phenomenon, and offer him an explanation which does not appeal to his reason, and unconsciously he ceases to exercise it. His critical faculty becomes gradually blunted. Could anything be worse as a discipline! Let us see the sort of result that follows. He is told that the composition of hydrogen chloride is deduced from the electrolysis of its solution in water. Now, although the boy has already been shown that hydrogen is formed by electrolysing water, he does not hesitate to accept the statement that the hydrogen is derived from the acid and not from the water. I have never come across any boy who has questioned this information, and who was not content to accept assumptions which his undisciplined common sense would never have sanctioned. Surely a process which leads to a result of this kind must be intellectually demoralising.

But suppose that we suppress electrical phenomena of all kinds at this stage, as some sensible teachers do, and only rely on the union of gases to prove their composition by volume, we are by no means at the end of our difficulties in studying volume relations.

The boy finds that two volumes of hydrogen and one volume of oxygen do not give three volumes of the combined gases, but undergo contraction in the process to two volumes. Here is a natural paradox more remarkable than any of those which have come within his previous experience. Could he have anticipated such a thing? One remembers how astonished such an old experimenter as Priestley was on mixing oxygen and nitric oxide, and noticing the one gas, as he described it, "eating up" the other. Why should three volumes become two? The same thing happens when carbon monoxide and oxygen unite. But if hydrogen and chlorine combine, or carbon burns in oxygen, no change ensues. This must be very perplexing to the average boy. The contraction is, in fact, so remarkable, so opposed to common sense and common logic, that the process cannot appeal to his reasoning faculty. He remembers it as he would a conjuring trick, and mentally subjects every union of gases, mixed or combined, to the same process of contraction. I have seen the atmosphere described as a mixture of four volumes of nitrogen and one volume of oxygen which together form *one* volume of air. The teacher may say "This is all straightened out subsequently, when the boy learns about atoms and molecules." My opinion is that with atoms and molecules his real troubles begin. He steps out of the domain of the tangible, and flounders among the imaginary. It is "confusion worse confounded." To my mind there is nothing in the whole region of science so difficult to make clear as the meaning of atomic and molecular weights. You may explain combining

weights and equivalents, or, better still, let the boy find them out for himself. That is another matter. Atoms and molecules live apart. They belong to the region of the invisible and the transcendental. The reason for this is that our knowledge of them rests mainly upon our knowledge of the gases, and the gases, from the boy's point of view, lie on the brink of the unreal.

I do not propose to enlarge upon this topic, but I am quite convinced that the habitual use of formulæ and equations by those who do not properly grasp their significance is positively harmful. It would not matter if the formulæ were used merely as a kind of shorthand, but, far from this being the case, they are taken to imply definite knowledge. How many boys can give a complete and logical reason for writing nitric acid HNO_3 or sulphuric acid H_2SO_4? Very few. But there are many who would tell you without hesitation that the one acid contains nitrogen and the other sulphur, by referring you to the formulæ—in other words, the theory is used as the basis of the fact, instead of the other way about, and a condition of topsyturvydom reigns, such as Alice experienced in passing through the looking-glass.

I know of a school where the first notions of *science* are imparted by the study of the gas-flame and the Bunsen burner. The child has no previous knowledge of gases. Before it has been taught to regard gases as something real and tangible, it is brought face to face with one of the most elusive of chemical phenomena, namely, that of flame. The facts which the child learns seem to heighten rather than to simplify its difficulties, and its first ideas of science are consequently confused. Chemistry becomes a thing of pretty surprises, unexpected odours, bewildering messes, or disconcerting sounds.

A subject such as flame, common though it is, cannot be handled by a beginner. It is like setting a series of riders in Euclid to one who had never learnt the propositions. It is a mistake to suppose that common phenomena should be studied early because they are common. Some of the commonest are the most involved.

In these somewhat discursive observations I have attempted to point out the dangers attending the teaching of chemistry as a school subject. It is not that the teaching is too didactic, nor, on the other hand, that the beginner is left too much to puzzle things out for himself. It is simply that the subject does not admit of simple and logical treatment. I do not propose to lay down a scheme of instruction. There are a certain number of chemical facts that can be taught to young people without perplexing them, and which convey really useful information. But it is, I feel sure, a mistake to imagine that chemistry is a sound discipline. The principles of mechanics, hydrostatics, pneumatics, light, sound and heat are far more valuable as a foundation *for* building up a scientific habit of thought. *Chemistry*, as a science, should be relegated to *the college* and the university.

RELIEF MAPS AND MODELS

By JOHN A. McMICHAEL, B.A., B.Sc.
Headmaster of the City and County School fo Chester.

OF late years the usefulness of relief for the teaching of geography h admitted on all hands. Excelle *maps* of certain countries are to be h moderate price, but relief *models* are ob of a very few districts only. Moreover, th which should be the first to find a plac class-room or the geographical laborator model of the home locality. This, of c not often on the market, and to have it made by the trade would be far too cost sidering the small sum usually available graphical apparatus. Some months ago mined, as a way out of the difficulty whether relief models could not be mad pupils themselves, and I have here set account of our experiences which may without interest to the readers of THE WORLD.

The first attempt was a model of F We used the cheap copies supplied by nance Survey Department of Sheet No. 1 1 in. to the mile, printed with contours hachures. We decided to use the step system, the method of which consists in out sheets of cardboard with bounda exact shape of each contour line. Thes are placed in their proper places one other, and the result is a model which, i showing gradual slopes, has abrupt ris contour lines. This, of course, is no representation of the hill slopes, but wit light full on the model (*i.e.*, not a side steps almost disappear, and an excellent effect is produced. Moreover, *this is method* by which it is possible to have t map with all its detail on the model. local model is excellent, because the sit any village with regard to the su features can be studied as it appears (*a*) (*b*) on the flat map, (*c*) on the model. portant still, it is by far the easiest and method of familiarising the pupil with the and reading of contour lines.

If gradual slopes are preferred, and i detail of the map is to be dispensed steps may be filled in with plasticine, mâché, or other similar material. This method used in making the geological the Isle of Purbeck, which is to be se Jermyn Street Museum of Practical G

Having decided on the method, we or six of the cheap Ordnance maps and them on cardboard about $\frac{1}{20}$ in. thick. out the model, thin glue was used; pas tine, fish glue, and the like are to be as they take too long to dry, and the is apt to make the cardboard buckle. T thickness of cardboard gives approxi vertical scale three times the horizont

And here let me say that when we make another of this type we shall certainly use the shilling map. I am not at all sure that the cheap zinco maps are worth even the small amount of money they cost.

As to the time taken, this worked out at about seventy "boy-hours." As only a few boys were employed, we were obliged to depend on their keenness for a good many hours out of school.

The class as a whole was not able to share in the work of this rather elaborate model, but I have with very great advantage made every boy in a class (ages thirteen to fifteen) do for homework simplified models on the lines indicated above. A map with contours such as has been given in the physical geography papers of the University Local examinations, showing a simple drainage system, was chosen. This was graphed on thin card, and two copies given to each boy. The contours were purposely kept

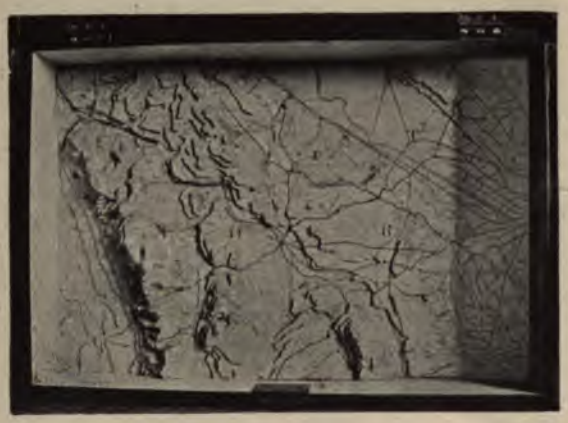

FIG. 2.—Photograph of stepped model. The highest point of the range is 1,820 feet. Owing to the colours, the photo. does not do the model justice.

free from intricacy so that they could be cut with a sharp penknife or scissors. The rings were cut and mounted as above described, and the resulting model shown as homework. After this I have no hesitation in saying that every boy had a clear idea of the meaning of contours, and could read any ordinary contoured map, or sketch any simple natural forms.

An Original Method of Making a Model in Class.—Being dissatisfied, as I have said, because only a few boys were able to participate in the making of this model, I tried to find another method which would not be open to this objection. After much thought and experiment I hit upon what I believe to be an entirely original plan. Instead of using layers, I determined to build up a model as an exercise on sections. The class chosen for the experiment used Bartholomew's half-inch cycling map, each boy having one of his own. The model was to represent a quarter of this map, and the vertical scale chosen *was 1 in. to* 1,000 ft. The ratio of the vertical *to horizontal* scale was therefore approximately *10 to 1.* I am inclined to think this is rather large, and we have since tried them h scale, and it has proved quite satisfactor

The *modus operandi*, in brief, was to dr tions on cardboard along lines parallel side of the map and one-quarter inch apart sections were to be cut out and fixed up position, the intervals being filled with cla advantage over the previous method is that lines are much simpler lines than contou There is never any undercut or re-entrant the former. They can therefore be ea with a penknife, especially as it will be s quite thin cardboard may be used.

In detail we proceeded as follows. Lin allotted to each boy in the class thus: N edge, one, two, three, four quarter inch N. Strips of squared paper of the require and width, mounted on cardboard, were p We have since been able to get cardboard in squares. One edge, the base of the must be carefully cut along one of the th of the squared paper; the upper edge course, be waste. A line half an inch ab edge was taken as sea-level. Each boy

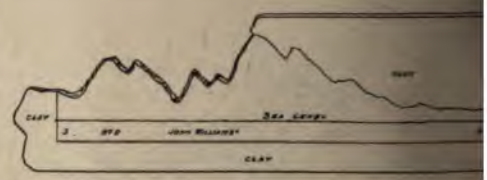

FIG. 3.—To show the section with its clay "plaster" after b taken out of the grooved board and partly trimmed.

strip, laid the *true* edge on the line allotted the north side of it. He then marked a the section, measuring the ordinates from marked as sea-level. This was checked neighbour and returned. He next cut a section, and also cut off the waste end result was a piece of cardboard as in Fig.

The space below the sea-level line give in the low-lying parts of the map. I fo after a little practice every boy could cut out two sections in an hour. It is possible with a class of from twenty-five to prepare all the sections necessary for in one lesson, the class being occupi really instructive work, and, moreove which directly bears upon the examination of many university and other examining

A rough box was now made having sid four inches high and base exactly the di of the map. (The sides must be about higher than the highest point in the s The south side of the box was not fix the model was finished.

The next process was to put each se right in position and to fill in the space w Even if this is done incompletely as s Fig. 4, a very clear idea of the lie of the may be gathered. After several failures upon the following plan: A board wa

ng, 6 in. wide, having a groove 4 in.
l *exactly* ¼ in. deep. In this groove the
was laid down, marked side down-
Modelling clay worked to a rather stiff
cy was pressed firmly down upon it,
excess scraped off with a straight edge
The result was a slab of clay with the
l adhering and exactly ¼ in. thick. The
us clay at the edge of the cardboard was
ith a knife, and the section was placed
in position. Note that the *first* section,
ge, did not receive a clay plaster, but
ed to the side of the box. If several
boards are provided, the slabs can all
in position in half an hour. It took us
s we only had one board for the experi-

this was done the model was correct
sections and very nearly so between.
w entrusted to three or four smart boys,
hom was made responsible for an area.
ft to them to smooth down and fill up

graph of the first attempt before filling in was complete.
of the box forms the sea-level. The sections on the plain are
keep their shape. In this model the sections were half an
not one quarter as in the succeeding ones.

which were the natural consequences of
od. The clay for finishing was worked
a consistency somewhat smoother than
he clay used for packing the sections.
irregularities had disappeared, the boys,
ring the model with the contour map,
to model the sides of the valleys and
e courses of the streams were carefully
t, and any marked heights that happened
veen the lines of sections were gauged by
knitting-needles pushed vertically down
lay. Thus the clay model was finished,
icked boys having spent about one hour
it. It is quite possible that this esti-
ne will prove too short at the first
as we certainly acquired a considerable
f dexterity by our early failures.
be observed that we used clay, not plasti-
e boys who have used both prefer clay,
cleaner and easier to work. It has, of
be kept damp with cloths, and a per-
odel is impossible, owing to the shrink-
e clay. A plaster cast must be taken
clay model, this being by no means a
usiness, although the necessary splash-
e plaster may be considered by many a
great objection. At some future time I may be allowed to give more information on this point, and also on papier-mâché and other compositions. In the meantime a modeller will make a cast or two from your model for a very small sum, or plasticine may be used instead of clay, thus making a fairly permanent model at first hand. The plaster cast can be painted with water-colours or enamel paints showing such geological or topographical data as are desired.

I have endeavoured throughout this article to show how the construction of models may be educational and a help rather than a hindrance to the teacher of geography. Care must be taken, however, that this model-making does not bulk too largely in the year's work. When one class has spent such time as can be spared for contour lessons, the model may be finished by another class. The whole Bartholomew half-inch map need not be done in one year. So long as the same scale is always used, it is possible to build up quite a large area in a few years, practically the whole work being done in class.

A NEW METHOD OF AWARDING SCHOLARSHIPS.

By Cloudesley Brereton, M.A.
Divisional Inspector to the London County Council.

THE majority of thoughtful people, whether inside the school or out, are being gradually forced to the conclusion that our academic methods for gauging a boy's abilities have been based on far too narrow foundations. Until quite recently the mere winning of knowledge, or rather of certain very specialised branches of it, has been considered an ample guarantee that its possessor is competent to fill with success the highest and most important positions in the world's work. To put it paradoxically, one might say the writing of Latin and Greek prose is the main test for the Vice-Regency of India. But the real touchstone of education is life, and life, as far as we can judge, awards its scholarships not for knowledge, but for power to utilise knowledge, whether acquired in the school or not. It naturally does not despise knowledge, for the simple reason that the more data a man possesses, the more raw material he possesses for forming sound judgments.

It is true the academic training is not confined to the mere acquisition of knowledge. It fosters, in fact, certain types of ingenuity, but these lose half their value and descend to the rank of elegant accomplishments if they cannot be brought to bear on helping on the world's work. At best they may enable their possessor to solve a difficult chess problem in the weekly column of the *Times*, or win a jingling Limerick. And, finally, the Examining Board of Life gives a very large proportion of its marks to force of character, earnestness, grit, endurance, enterprise, firmness, pertinacity, self-respect, and sense of duty, which the academic pundit either ignores or else roundly declares to be inassessable for examination pur-

poses. To put the thing in a nutshell, our present examinations are too much of an audit in mere knowledge or in restricted forms of ingenuity. They do not sufficiently test the powers of observation or judgment of the candidates, and they entirely fail to take into account what are ultimately vital factors in the candidate's future career. Our time-honoured methods of written examinations are in fact one-sided and incomplete. The necessity of some sort of oral examination, either to supplement or supplant them, is daily becoming more patent.

The Osborne method of choosing naval cadets has been, in spite of certain defects, an undoubted step in the right direction. It allows us to test directly not merely the pupil's powers of observation and inference, but also the moral qualities enumerated above, which are so valuable in the race of life; for it is the man who can do twelve hours a day of intelligent work who wins in the long run, the sturdy stayer who spread-eagles the field of elegant sprinters in elegiacs. Where the Osborne system goes, to my mind, too far in the opposite direction, is in the undue importance it attaches to the oral test, making, as it does, the written work a confirmation of the examiners' decision, but not a corrective; *i.e.*, it weeds out those whom they have appraised too highly, but gives no second chance to those who have been rejected at the preliminary oral. Again, I personally have never been able to ascertain whether the classification adopted by the Board of Examiners is strictly followed by the Admiralty in making its award, *i.e.*, whether all the candidates marked A+ receive appointments before those marked A, and so on, until the list of places to be filled is exhausted. It would be well if some time or other a definite pronouncement could be made on this point by the authorities.

I have recently taken part in an examination for entrance scholarships conducted on lines which are a modification of the Osborne system. The school in question was Clayesmore, near Pangbourne, and my fellow examiners were Lieut.-General Sir Charles Warren, Dr. E. A. Sonnenschein, Professor of Latin and Greek at Birmingham University, and Prof. J. W. Adamson, Professor of Education at King's College, University of London, while the able and energetic headmaster of the school, Mr. Devine, acted as our president. I must confess myself a full believer in the ultimate success of the new system, subject to certain important modifications I have given below; and though I have no authority to pledge the opinions of my colleagues, I am sure, from their spoken and written utterances, they are in the main of the same way of thinking as myself. Thus Sir Charles Warren looks on the oral as most valuable if made an *adjunct* to the school report and written examination; Prof. Sonnenschein regards the interview of candidates as a valuable supplementary *means of* discovering their capabilities and, above *all, their promise*; and Prof. Adamson describes the experiment as "most interestir valuable." Although the majority of us pretty extensive experience in the way ducting oral examinations, we were al making trial of the new system for the fi I think, therefore, a description of our *operandi*, of our experiences, and of o culties cannot fail to be of considerable tage in the way of hints as to what to or avoid to any who may be tempted to c methods.

The examiners were supplied beforeh the headmaster with all the official litera the subject of the Osborne examination, as with the printed conditions on the ele scholarships, sent out to headmasters and The boys who presented themselves arrive three days before the examiners. Th lodged at the school house, and every ef made to put them at their ease. The wr aminations consisted of papers in Latin, English (geography and history), and mat (geometry, mathematical paper No. 1, a te curacy; paper 2, a test of knowledg papers were set and corrected by the sch They were very fair papers and ver marked, but perhaps on a subsequent it might be an advantage if they were s to the external examiners for considerat criticism, in case there were any points o the latter thought the papers might be in

On the day of the interview each boy "fifteen minutes' essay" on some ea familiar subject, such as "my favourite The result was a series of compositions a page or less on riding, boating, stamp ing, &c. While the examiners were looki over, the headmaster read out a short, h story to the candidates.

Our first difficulty occurred with the Obviously, length was of little considerat how were we to mark them? We cam conclusion that until we had seen the must proceed in a tentative fashion, revise our results when we had seen e form in our own mind a well-defined s The system of marking was naturally b and not by figures; the fallacious appea certainty given by the latter was thus eli "Very good" was A+, with A and A− fying marks; "good" was B+, with B− as qualifying marks; "unsuitable" We tentatively took A− as our top mark, to allow us a margin on either side.

Before any of the boys were summoned cursory inspection was made of the mark in the literary examination, and the remar examiners dealing with each boy individu very valuable aid was the school record boy, which was read out by the presiden the candidate was called into the room. reports, as far as we could verify them for the most part extremely well and done. There was little, if any, attempt exaggerate the merits of any candidate,

s and answers supplied valuable materials
ersation at the interview itself. The fol-
s a copy of the *questionnaire* itself:

of boy. 2. How long have you had him under
1? 3. What is your opinion as to his (*a*) power
for himself, (*b*) power of imagination, (*c*) power
for himself, (*d*) power of memory, (*e*) power of
ınd application? 4. Has he any particular bent
stance, languages, natural history, or practical
? 5. Is he keen in his work or play, or in
What is your opinion as to his (*a*) general con-
ense of right and wrong, (*c*) affection and sense
, (*d*) sense of tidiness, order, (*e*) will power,
, manners? 7. Does he tend to lead other boys?
is influence good? 8. Would you describe him
f average or more or less than average ability?
he point of view of physical power, what do
as to his general state of health? Would you
s a strong constitution? Is he a boy of active

admaster would be grateful if you would state
lly your opinion about this boy, his capacity
romise he shows, and his conduct both in and
ool since he has been under your care.)

terview with the examiners lasted twenty
minutes. The proceedings were con-
ith all possible informality, and the candi-
re apparently speedily put at their ease.
orous story was of great service in break-
ce, and care was taken not to put the
out of countenance by asking him a
posers at the outset, but the first pre-
questions were purposely formal or rather
The majority of the candidates showed
ppreciation of the points in the story, and
isplayed some power of psychological
which, however, one of my colleagues
d to be premature. Questions on hob-
n brought out indications of first-hand
on and powers of inference, as well as
of the value of tastes in indicating
al or literary bent, or a love of Nature
ways. Other questions, on the route
come to the school, on the home and
undings, on places visited, on the daily
n the boy's ambition, on sports, &c.,
out further points, such as power of
n and composition, *i.e.*, the power to
ory in its proper sequence, as well as
precious indications of various moral
such as the sense of right and wrong,
r, and the capacity for sticking to things.
ally, I may say that in appraising the
ven to each candidate my decision was
ıtirely influenced by these considerations.
one case, where a candidate showed a
p of oral French, did I also take that
ion into account. I think these were
stantially the lines on which my col-
worked, as we were all struck with the
unanimity of opinion at which we arrived
e relative position of the candidates in-
y. Speaking again for myself, I will
I proceeded very largely by impression,
lown a mark for each of the main features
as a kind of memorandum; thus I set down a distinct mark for the essay, for the teacher's opinion, and for the impression I received of the pupil at the oral, copying down also any answer that seemed to be specially indicative of quality or promise, in order to utilise it in talking over the placing afterwards with my colleagues. I did not, however, add these marks together and then strike a mathematical mean, but keeping them as a record or memorandum, I finally formed in my mind a general estimate of the pupil, to which I then attributed the coefficient which seemed best to accord with the totality of my impressions. Whether my colleagues followed exactly the same course I cannot say, but the unanimity of our results arrived at more or less independently was wonderful. We then went carefully into the merits of the candidates' written work, and found that the three best boys on paper were also those whom we had already selected, though the order was not the same. We finally maintained, after discussion, our own order, our principal difficulty consisting in discriminating between the merits of two boys of different ages, twelve and fourteen, but we ultimately arrived at an absolutely unanimous decision. I would add that the final award was strictly in accordance with the placing of the examiners.

I hope the above description is sufficiently full to indicate that the experiment, as conducted by my colleagues and myself, is thoroughly trustworthy and thoroughly workable. It is, no doubt, capable of much improvement. I would suggest that much time would be saved if the preliminary written examination were used as a sieve to eliminate dull and weak candidates. Only boys who obtained a certain minimum of the general total should be allowed to present themselves for the oral. I would widen the written examination by adding a mechanical test, or at least a drawing test, *i.e.*, the making of some simple model in wood, or the sketching of some object from memory; otherwise the talents of certain boys with prominent motor-activities will not be fairly assessed. To the oral I would add a reading test. Its advantages would be twofold. It would be an admirable test in elocution, and incidentally it would be a valuable test in taste and feeling. On the other hand, the explanation of the passage set (not paraphrase or parsing, but analysis of thought) would be a useful help towards assessing the boy's powers.

A mathematical expert should be a member of the examining body, not so much to ask special mathematical questions as to be able by general questions to discover mathematical bent. The time of the interview could be cut down by a third or even a half, if a strict order of questioning were followed, instead of the examiners "cutting in" when they thought fit. The marks should all be shown up on one sheet and added together in order to give a bird's-eye view of the candidate's performances in the written work.

The latter seems to me an integral part of the examination. The questions, if properly framed,

should furnish clear evidence that the candidate possesses the indispensable minimum of knowledge in each subject arranged in an organic and coherent form in his mind, and at the same time indicate whether he is likely to train on in any particular branch of knowledge. But when all is said and done, the best devised written examination is really little more than a more or less complete instantaneous photograph of the candidate's mind. Being by nature essentially static, we can only indirectly infer from it sharpness, cleverness, or acquisitiveness, and to still less an extent can we judge of a candidate's tastes, powers of observation, or of perseverance, or of quickness of apprehension. Moreover, as at present constructed, it is somewhat bookish. The overwhelming advantage of the oral examination is that it allows us to test for those very qualities which can only at best be inferred from the written examination. It should only incidentally, except in mental arithmetic and modern languages, be a test in general knowledge. Its real aim and object should be to find out how much of the pupil's acquired knowledge, whether bookish or picked up in the school of life, can be converted into thought-energy, to discover, in fact, its value in terms, not of *mass or volume, but of mental dynamics*. If boys can be crammed on these lines, in order to win scholarships, I can only say that I hope that such cramming will go on, on as big a scale throughout the country as possible, because no boy can be prepared in this fashion without concurrently acquiring a large amount of knowledge, and at the same time having kindled in him the desire to acquire more. Any possible danger of accuracy being sacrificed, or of the taste and judgment being trained at the expense of memory, whereby the boy's knowledge might become superficial or discursive, will be kept in check and balanced by the necessity of having to pass in the written work, which, as I have intimated, should be a test of accurate and organised knowledge in certain indispensable subjects.

CLASS-ROOM PHONETICS.[1]

By HARDRESS O'GRADY,
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II.

LESSON IV.—THE CONSONANTS. FRICATIVES.

Apparatus required.—Chart of speech organs; Lloyd's diagrams of the positions of the lips, &c., in producing the fricative consonants. Coloured chalks. (*Note*—For the consonants I use only one coloured chalk, differing from those used for the vowels, and underline vibrated sounds with red.)

REVISION.—Revise Lessons I., II., III., by questions. The following exercises may prove useful:

(1) i...ɪ, u...ʊ, i...ɪ, u...ʊ, ...
(2) i...ɑ, ɪ...ɑ, e . a, ɛ...ɑ, æ...ɑ, ɔ...ɑ, o...ɑ, ʊ...ɑ, u...ɑ.
(3) i...ɛ...ɑ, ɑ...ɛ...i, i...ɛ...ɑ.....
(4) ə...a, a...ə.....
(5) ɛ...e, ɔ...o, ɛ...e, ɔ...o and conversely.
(6) æ...a...ɑ.....
(7) i...e, e...i.....

DEFINITION OF VOWELS.—Before pro farther, it will be well to sum up the poir characterise the production of a vowel. found the following a method that intere class. I spoke of common factors (or to children merely of something which a nur persons or things have in common). For in I asked them what might be regarded as a c factor of, or thing common to motor-cars, bulators, railway carriages, watches, wl rows, sewing machines, roller skates. This the answer *wheels*. I then asked for the factor in the producing of all vowel sounds gave me, and I noted, vibration, passag air through the mouth, use of tongue a I left the definition at that until the consen been dealt with.

FRICATIVES.—(*Note.*—Although w is th that comes first in natural order, I beg f, as being more definite and characte a fricative.) Give the class a set of wo *five fathers fight fiercely for fun*, and a what is the sound at the beginning of each

Next, get the class to say what parts mouth are used in producing this sound. up in the cross-lines (see blackboard notes lesson) the phonetic symbol f, writing the parts of the mouth used.

v. Ask the class whether there is any of the vocal chords in producing this sou them to make a sound, keeping their teeth in the same position, and in additior their chords vibrate as the air passes ou gives v.

Write up v next to f in the same squ underline it with a different coloured cha the class you mean to underline all s which there is vibration.

Write up on the blackboard (see bl note) a list of words illustrating the and v.

E.g., Five variegated villains vanquisl Frenchmen, vanishing after violent fighti what difference there is between the fe escaping air of f and v respectively. this is.

w. Go back to the lip-and-lip soun what sound there is at the beginning words in:

Weary Willie wails when we work,
While Woggles wags his woolly tail.

Ask what parts of the mouth are used ir this sound. Write up above the first sq blackboard note) "Lip and lip." A vowel is nearest to w in the place of its tion. When u is given as the answer, these sounds are alike in the method of

[1] The first article appeared in the October, 1907, number.

tives and ask what sounds they represent; then give the chalk to one or more members of the class, and dictate sounds.

(*d*) If desired, the following may be set as homework: Give, with diagram, the position of lips, teeth, tongue in pronouncing w, f, v, &c., together with an explanation of the passage of the breath, and whether vibration takes place or not.

(*e*) The following doggerel contains all the fricative sounds:

Shameless, five thieves one winter's eve
Steal from a church the chalice, host,
With laughs the holy precincts leave,
When see! A fiery, threatening ghost
Rises athwart their path and sighs
While others wail the yews beneath
And writhe before them, till their cries
Send shudders o'er the furze-strewn heath.

BLACKBOARD NOTES.—I am indebted to Messrs. Scholle and Smith for the idea of the gradual classification of consonant sounds and the construction of the chart. I refer interested readers to their book on Phonetics. Whether they, in turn, have borrowed the idea, I cannot say.

After the sound "f" has been given, tell the class that it might be well to arrange the new sounds in some way or other, and recall the fact that the map of the tongue positions worked out with the tongue travelling from the front of the mouth to the back. Say that you will travel from the front speech-organs backwards. Draw on the board first only three lines, as in Fig. 4, and add the other lines as needed.

	Teeth and Lip	
	f v	

FIG. 4.

When the lesson on the fricatives is finished, the left side of the board will appear as in Fig. 5, the right as given below:

Lip and Lip	Lip and Teeth	Tongue and Teeth	Tongue and Gum	Tongue and Fore Palate	Tongue and Middle Palate	Tongue and Back Palate	Glottis
w	f v	θ ð	s z ɹ	ʃ ʒ	j		h

FIG. 5.

w. Whale, woman.
f. Fellow, cough.
v. Victor.
θ. Theology.
ð. Though.
s. Miss, six.
z. Zebra, gaze.
ɹ. Round.
ʃ. Shop.
ʒ. Pleasure.
j. Yacht.
h. High.

LESSON VI.—THE PLOSIVES.

Apparatus required.—Chart of speech Coloured chalks.

Sounds to be taught: p, b, t, d, k, g.

p. Ask what sound comes at the begin *Peter Pan.* How is this sound produced? you say it belonged to the same class as s, z, &c.? Why not? Does the air pa continuously, either with free passage c forced passage? Could you go on produc sound as an unbroken sound? How you describe the sound? Do the vibrate?

Draw a line under the fricatives. Ask p will fit into any of the perpendicular d already drawn. Place p under lip and lip Ask for some words in which the sound Give as an exercise *Peter Piper picked,* &c

b. Tell the class to put their lips in th position as for p, but to vibrate the vocal when producing the sound. Write up the for the sound next to p, and underlin show vibration. Ask for some words i the sound occurs. Give a series of wor as cap, cab; pat, bat; prick, brick; cabb captain; and ask in which the sound is and in which unvoiced. Pronounce in on p, bp, bp, bp, b.

t. *Tricky trial trips on motor-tricycl treacherous tyres tired Tom Tiddler till entirely restored his training.*

How is t produced? Has it anything mon with p? Is it voiced or not? Can draw a diagram of the tongue position wh sound is produced? Into which square chart will t fit? How does the tongue mo this sound is produced? Write up the for t.

d. Is it possible to produce the sound t the same time add vibration of the chords? is the result? Into which square shall w How shall we show that the sound is v differing in this way only from t? Gi words, if possible a sentence, in which eve begins with d. Give the following exerc dt, td, dt, tttt, dddd. What happens to lowing words if you unvoice the first con *Dell, die, din, den, dame, dip?* and to lowing if you voice the final consonant: (*mat, bat?*

k. Tell the form to produce the sound note the position of the tongue. When so answer as "middle of the tongue agai middle of the palate" is given, ask wheth is a complete closing of the mouth by the Ask for a rough diagram on the board production of j. Now tell the form to r the tongue so as to get complete closing same time forcing the air to break an c After a little trying, the sound k should b I have found myself that it is difficult from j to g direct. The voiced j becor voiced k. Place this sound in its square, whether it is vibrated, and in what w

A. British History.

(i) **Pitt's Ten Years' Peace, 1783-93.**

(1) MINISTERIAL POSITION: King's own choice (compare and contrast Bute and North); importance of General Election of 1784; was Pitt Whig or Tory? Relations with Fox and Burke; Regency Question, 1788–9 (compare 1688).

(2) HOME MEASURES: Freer Trade (lower duties; commercial arrangements with Ireland and France); Roman Catholic Relief in England and Ireland; proposals for Parliamentary Reform and Slavery Abolition (Wilberforce).

(3) INDUSTRIAL REVOLUTION (agriculture; iron and textile processes; canals; steam) begins to take effect and helps Pitt's recuperative work in finance; Adam Smith.

(4) COLONIAL AFFAIRS: Pitt's *India Act*, 1784; Impeachment of Warren Hastings, 1788–95; Botany Bay, 1788; Nootka Sound Affair, 1790; *Canada Act*, 1791.

(5) FOREIGN AFFAIRS: Commercial Treaty with Vergennes, 1786; *Triple Alliance*, 1788. Varying attitudes to French Revolution: Burke's "Reflections"; Paine's "Rights of Man."

(ii) **Revolutionary War, 1793-1802.**

(1) CONDITIONS OF WAR: Great Britain fails on European mainland (especially Brittany and Netherlands), but wins naval victories (even in the year of mutinies, 1797), and outside Europe acquires territory (temporarily) at expense of France and her European allies (which? where?), and (permanently) at expense of France's Indian allies (which?).

N.B.—Howe, Jervis, Duncan, Nelson, Abercromby, Wellesley.

(2) HOME CONSEQUENCES OF WAR: New Tory Party ("Old Whigs"); gagging legislation; social distress; financial pressure; Irish disaffection, culminating in the Ninety-Eight and in the *Union* of 1801.

N.B.—Compare and contrast Scottish Union.

(3) PEACE OF AMIENS, 1802: terms; why was peace made then and not earlier?

(v) **The Napoleonic War, 1803-15.**

(1) REASONS FOR WAR: Malta *v.* Germany.

(2) MINISTERIAL SUCCESSION: Addington, Pitt, Fox, 1806; then secondary personages.

N.B.—Ministerial crisis of 1807 (compare 1783–4).

(3) MODES OF NAPOLEON'S ATTACK: (*a*) direct invasion (frustrated at Trafalgar, 1805, and at Copenhagen, 1807); (*b*) Continental System (methods and motives). Hence the Anglo-American war of 1812.

(4) MODES OF ATTACKING NAPOLEON: subsidies, sporadic expeditions (Netherlands, Italy, Egypt), Peninsular War (1808–14), Waterloo Campaign (1815).

(5) RESULTS OF THE GREAT WAR: heavy financial burden, involving social unrest; great territorial gains, both Colonial and Indian (enumerate).

N.B.—British Map-work (see especially the British historical atlases of Robertson and Reich): turnpike roads and canals constructed in British Isles, 1760–1815; Ireland in 1798; India, 1783–1819 (Hastings, Wellesley); Campaigns in Peninsular War; Waterloo Campaign.

B. Foreign History.

(ii) **Royal and Anti-Royal Revolutions, 178**

(1) CENTRAL EUROPE. The Emperor Jos attempt to exchange the Netherlands for Bavari trated by the Fürstenbund, headed by Frederick dies in 1786); and his attempts at internal refor risings in Hungary, Bohemia, and Belgi successor, Leopold II. (1790–2), checks Prussi presses disorder, but fails to preserve peace with

N.B.—Tangle of Northern Wars, 1787–91.

(2) FRENCH REVOLUTION (to be continually com contrasted with British revolutions): Americ philosophy, bankruptcy, class grievances, politic Notables (1787), States-General (May, 1789), Assembly (June, 1789), Legislative Assembly 1791), Convention (September, 1792); Consti 1791; Clubs and Mob. Party competitions and foreign intervention lead to foreign wars and a monarchy (1792), and to execution of King (179

N.B.—Marie Antoinette, Mirabeau.

(3) FRANCO-CENTRAL RELATIONS: *Declaration* (1791)—ineffective because of Austro-Prussian answered by offer of "Liberty to Peoples."

(iv) **First and Second Coalitions, 1793-18**

(1) FIRST COALITION, 1793–5: Prussia, with Second and Third Partitions of Poland, i war against France, makes peace at Basel in makes alliance in 1796; Austria, left alone a by Bonaparte's campaign of 1796, makes peace Formio, 1797.

N.B.—Circle of Republics round France, 1796

(2) FAILURE OF DIRECTORY (1795–9) during B absence in Egypt (reasons for attempt and failur

(3) SECOND COALITION: Austria renews war 1799 with help of Russia; at first successful; parte's return is followed by establishment of (18 Brumaire, 1799) and the great victories of and Moreau in 1800, which lead up to peace at 1801.

N.B.—Paul I.'s Armed Neutrality, 1800–1: Al

(vi) **The Napoleonic Empire, 1804-15.**

(1) THE FRENCH EMPIRE: its bases, methods reforms, external expansion; Napoleon's Cors feeling.

(2) THIRD COALITION, 1804–7: Austria cr Austerlitz, 1805; Prussia (temporising policy) 1806; Russia conciliated at Tilsit, 1807. Terms.

N.B.—Dissolution of Roman Empire, 1806.

(3) NAPOLEON'S SECOND MARRIAGE follows defeat in 1809 and, together with Poland and C System, leads to invasion of Russia, 1812.

(4) FOURTH COALITION, 1813–14: developmen gards members, objects, and steadiness. M Castlereagh, Talleyrand, and the First Abdi Napoleon, 1814.

(5) THE HUNDRED DAYS AND THE CONGRESS OF bases of settlement—gainers and losers?

N.B.—European Map-work (see especially "Historischen Schulatlas"): Europe (especiall and Germany) in 1790, 1797, 1802, 1812, 1815; B Campaigns in 1796, 1799, 1805, 1812, 1813, 1814.

SED VIEWS IN HISTORY.[1]

By A. J. Evans, M.A.

II.

ask which was tacitly imposed by the ion on the Tudor family was to save it n a repetition of the Wars of the hat involved the removal of the causes occasion. The causes were "want of e," and the wealth and warlike tend- he nobles. The occasion was the failure ed heirs to the throne. Therefore the vernment must be strengthened, what of the nobles reduced in wealth and d the royal family must increase. The e years of Henry VII.'s reign saw six Parliament. These recognised Henry nd gave statutory sanction to the juris- the Privy Council, which, under the Star Chamber, had been doing work vard IV. They made "maintenance" ater years saw the establishment of ogative courts, the Court of Requests, of Wolsey's for cheap and speedy jus- Council of the North, the Council of marches, and the High Commission ecclesiastical matters. All these were ecause they were directed against local and protected the poor and needy. So "despotism" was slowly established. it last? Would the family survive? If no male heirs two evils threatened— and absorption into a foreign house, as the fate of Burgundy and Brittany in th century, two countries with which ad intimate relations. From 1509 until was no heir to the throne. Henry e stood between his people and, on the anarchy, on the other, subjection to of Valois or Habsburg. This period of spense explains the reign, and accounts asion which brought about the politico- al "reformation." While there were n heir by Catherine of Aragon, Wolsey y the diplomat, and think he was the ht in Europe, whereas in truth he was lance index. Parliament need not meet, ing was rich, either with the spoils of s left by Henry VII., or with the and gifts which Henry VIII. could col- the wealthy. But when the Pope could uld not pronounce the sentence which w Henry to marry someone more likely erine to give the kingdom an heir, Par- as summoned, and helped the King, statutes were necessary, to cut the with Rome, and give to the country a f "splendid isolation."

until we reach the reign of Henry VIII. n get a general view of mediæval Church The work of our first "Long Parlia- 529–36) was comparatively easy, because ly the end of a long controversy. The Synod of Whitby (664) had brought the Churches of the British Isles into conformity with the usages of "Rome," *i.e.*, of Western Europe. Gradually, here as elsewhere, the authority of the Pope had grown, and the English Church formed but a part of the "Catholic" Church. With the growth of a strong kingship under William I., and the realisation by Hildebrand (Pope Gregory VII., 1073–85) and others of the inherent separateness of Church and State, the two organisations stood out one against the other, each claiming to be the guardian and ruler of men. Hence the erection of separate ecclesiastical courts and the growth of the "canon" as distinct from the "common" law. Hence the struggle over investitures (Henry I. and Anselm), over jurisdiction (Henry II. and Becket), over taxation (Edward I. and Winchelsey, 1297). Hence, too, when the Papacy was under the influence of our French enemy, the Statutes of Provisors and Præmunire. All these and many minor points (*e.g.*, the use of the assise of Darrein's Presentment) are but part of a long political contest, which has no connection whatever with theology. It was ended, or at least took quite other forms, when Henry VIII., with Parliamentary sanction, became practically Pope as well as King. Church and State in England henceforth have different relations from anything that had been seen before. Henceforward, too, there is a struggle, lasting over a century, as to the theology, forms of worship, and even later the form of government, of the now independent and isolated English Church. Regarded, therefore, from these points of view, avoidance of anarchy, acquisition of an undoubted heir, and the establishment of a new "papacy" and new theologies, Henry's executions have a reason, if not a justification. Yorkists, unfaithful queens and their adherents, Papalists and Protestants, are the categories under which we may group all the victims of Henry's "wrath."

Henry VII. reigned twenty-four years; Henry VIII., thirty-eight; Elizabeth, forty-five; Edward VI. and Mary between them covered only eleven. Those eleven years are as important as the eleven of Charles I.'s personal government and the eleven of the "Commonwealth." The Tudor despotism failed: the country was governed at first by nobles related to the royal family (Somerset), then by nobles who wanted to be related to the royal family (Dudley), then by a woman who showed by her marriage she was Habsburg, not Tudor, and in 1558 it looked as if England were to be a province of Spain. In the same year it also looked as if Scotland were to be a province of France. Where was the hope of "Great Britain," for which the Tudors had worked? And then a "miracle" happened. Mary Tudor and Francis II. of France died childless. England and Scotland were free again, and fifty years after, "Great Britain" began to be. In religious questions these eleven years saw a rushing into extreme Protestantism, coupled with a completion of the plunder which half disendowed the Church

[1] article appeared in the October number of The School

and established a new nobility, and then as violent a reaction to "Popery." Both were disliked by moderate Englishmen, and each in turn was hated by the extremists who suffered. No wonder that Elizabeth found it not very difficult to adopt a *via media*.

Such are the views on the Tudor rule and the ecclesiastical revolution of their time that are now generally adopted. There is no assumption that any one theology is right or wrong. There is nc opportunitv for offending any who are not blind to the possibility of others having something to say for their religious views. Religion is seen to be a moving force, yet it is not the only force. Dynastic and national desires are inextricably mingled. We subscribe neither to Foxe's "Book of Martyrs" nor to the martyrologies on the other side. The people who suffered were not, as a rule, simple souls who wanted only to live a quiet life, according to the truth as they conceived it. They were ecclesiastical statesmen who burnt and were burnt according to the views of their day, as cabinets are raised and ejected in our day by votes of the House of Commons. Hallam is still useful for his facts. But he cannot understand. He wonders at Protestants persecuting, and calls it "the original sin of the reformed Churches"—because in his "gentlemanly" and legal indifference to theologies of all kinds, he cannot understand that until the end of the seventeenth century *everyone*, except a very few, believed it their duty and privilege to enforce the "truth," and regarded "toleration" as the work of the devil. Besides, confining himself strictly to "constitutional" history, he does not see that every "persecuting" statute of Elizabeth was a weapon drawn against what most Englishmen thought was an attack from Rome.

For this period Motley's "Rise of the Dutch Republic" has been the most popular book. Why has no publisher thought it worth while to bring out a cheap edition of the sequel, in which Motley, having learnt his art, becomes more of a true historian? In that sequel is an interesting account of the fight of the Spanish Armada, and of the part the Dutch took in it. Besides this, our naval historians have recently taught us that it was not entirely the work of storms, that the Armada was defeated. English sailors and English ships were better than the Spanish, quite apart from the hopeless moral confusion on board the Spanish fleet.

With the defeat of the Spanish Armada, the English Church and State may be regarded as practically independent and secure. Then began the controversy of the seventeenth century. Should the English Church tend more towards Rome or at least towards Arminianism, or towards Geneva? Should her theology be less or more Protestant? Should her form of worship be ornate or simple? Should her government be episcopal or presbyterian? Or should she split into independent Churches, self-governing, though with friendly relations one to the other, *i.e.*, should she be congregational? Were these matters of divine *right and of binding* obligation, or were they merely matters of expediency? Such we questions that began to be asked even beginning of Elizabeth's reign, and that w cause of conflict and even civil war und Stuarts. Hallam knows only the name seems to imagine they came in merely a turbing factors in the struggle in which interested, between Crown and Commons does not realise that it was *only* because the and Court encouraged Arminianism and app Arminians to the bishoprics, and b Arminians therefore exalted the kingly pr tive, and, on the other hand, because the g being mostly Puritan-minded and wishi oppose the "Romish" tendencies, exalt assembly in which their wishes could be viz., the House of Commons, that there cam any conflict at all between Crown and Parli

The question was not merely domestic. international, too. When James I. came English throne, that part of the Catholic which still obeyed Rome had effected a refor at the Council of Trent, had defined her and, under the lead of the Society of Jesu working the Counter-Reformation with success. Spain had not even made a truc the revolted Netherlands, and all Germar simmering with religious conflict, which have broken into war in 1610 if Henry France had not died then, and which did into a Thirty Years' War in 1618. What James I., who wished to be "of Great Bri do in this conflict, hesitating as he was be a wish to ally with Spain and a desire t his Calvinistic son-in-law? How could a P House of Commons grant him money unt knew on which side he would use it? A could not tell an *English* assembly what Br policy was.

Thus, the constitution was strained. Stuarts tried prerogative ways of raising r so as to avoid meeting Parliament. The opposed those ways because they wanted ment to meet. The judges were the arbi these fiscal questions, and, especially aft dismissal of Coke, they feared to oppo King. And here Hallam is in his elemen we should follow him carefully for his fac his legal arguments, but remember all th that there is, behind all these "petty" dis an ecclesiastico-political conflict.

It was in the reigns of James I. and C I. that Greater Britain began to be. V began in 1607 with Jamestown, aristocrat episcopal. The Pilgrim Fathers sailed fro land and England in 1620, and founded Ply as a "*civil* body politic." New England up from a Puritan movement fleeing per- / pro- } secution in England, and consisted o gregational Churches, an intolerant the Roger Williams, driven thence, founded Island on the basis of religious liberty, as d the Roman Catholic Lord Baltimore in Ma All these colonies had an influence on the st

nd, an influence which is almost entirely
l in our text-books.
d should always be put in on behalf of
rt Kings. They inherited traditions of
ho governed, and whose Parliaments had
loyally and well with them. They knew
Parliaments had followed Tudor Kings
the bewildering ecclesiastical and theolo-
olutions between 1529 and 1559. The
uled over a Romanist Ireland, a Puritan
, and an England divided in religious
Which were they to follow? and why
ot Englishmen be as docile as they had
here was, as there always is, a mass of
mildly religious, but indifferent to the
ither party, and the fall of each extreme
omed by the nation, Laud's fall equally
t of "the Saints."
he history of the war we need not enter.
l, of course, be studied with maps, and
paid to the extent of influence of each
various dates. A few points should be
ar. It was not all the Parliament that
l at Westminster. The loyal part went to
and there claimed to be *the* Parliament.
romwell did not begin to rule England until
r, 1653. He was not even General-in-
il after his Irish campaign. The Scottish
es were the Church Assembly, much the
portant, and the Parliament at Edinburgh.
these two who made the Solemn
and Covenant with the Westminster Par-
This document was a treaty, not to be
led with the National Covenant of 1638.
ills had passed the two Houses at West-
during the Civil War, they became Ordin-
There was a Self-Denying *Bill* that ex-
members of Parliament from the army,
d not pass. The Self-Denying Bill that
and become an Ordinance simply caused
bers of Parliament who were officers to
but said nothing about the future. The
ster Assembly of Divines was a committee,
of clergymen, nearly all Presbyterian-
whom the Westminster Parliament con-
n matters of religion. They could only
ir advice, and it was not always taken.
ot worth discussion whether Charles I.'s
l execution was legal or constitutional.
an event in the middle of a revolution.
it was wise, or morally defensible, &c.,
iscussed. When Charles I. was dead, the
of the House of Commons ruled at West-
They conquered Ireland and Scotland,
conducted a commercial war with the
Netherlands. In 1653 they were ejected
General-in-chief. Oliver Cromwell then
the Congregational Churches in the
to nominate persons who should form
tituent Assembly, *i.e.*, an assembly
e a constitution for the country,
framers of Magna Carta, Provisions
rd, and Ordinances of 1310 had done.
ll and his officers chose from this list and
hers, and the assembly has been called the Little or Barebones Parliament, because one of its prominent members (not the Speaker) was Praise (not Praise-God: no Puritan was ever named by a phrase) Barbon (not Barebones). The meeting of this assembly marked the high tide of revolution; Kingship and the House of Lords having been abolished, these godly men would have disestablished and disendowed the Church and the lawyers. Then Oliver Cromwell stepped in and led the country back to its old constitution.

First, in December, 1653, he and his officers *made* a constitution, the Instrument of Government, by which the three countries were united and were to be represented in a one-chamber Parliament which was to meet regularly. There was to be a Protector with a Council, and the Established Church, now non-Episcopal, but chaotic, was provided with a short creed and a promise of settlement. Next, in May–June, 1657, Cromwell and his second Parliament between them *made* a new constitution, the Humble Petition and Advice, by which the Protectorate became hereditary, a House of Lords was added to the House of Commons, a Privy Council was to be nominated by the Protector, and the creed of the Established Church was made a little longer. Then, in September, 1658, Oliver died, and after twenty-one months of confusion, the restoration was completed, so far as it ever went, by the substitution of the Stuart for the Cromwell house, and the restoration of the old creeds, forms of worship and of government to the Established Church. Only the *made* constitution vanished. "So far as it went." But the events of 1642–60 had changed the nature of things. Kingship was restored, and in the old house, but not the kingship by divine right which the Tudors had possessed and which the Stuarts had proclaimed.

Passive obedience might be preached in Episcopalian pulpits, but Charles II. knew that this obedience had limits in the direction of Rome and prerogative taxation. The Parliament was restored, and even the three Parliaments, for Ireland and Scotland had Home Rule again, but it was a Parliament that had come to stay, and even become annual. The Great Contract which had been muddled in James I.'s time was now practically made, and Charles II. was always in want of money. Clarendon might think he was another Burleigh, but he proved to be a new institution, a detachable Minister, who was "slipped" by the King when he was disliked by the House of Commons. The Privy Council was restored, but it soon became unworkable, and was replaced for practical purposes by what we may by anticipation call a "Cabinet." The only institutions really restored were Episcopacy and the Prayer Book, and, for a time, everyone who did not agree to these was treated as a rebel. Presbyterians and Congregationalists were driven from the livings from which they had but recently driven the Episcopalians, and laws were passed to punish what had always been illegal—worship separate from that of the parish churches.

Charles II.'s reign is a period of great changes,

made quietly. The taxation of the clergy, which had been a burning question in 1297, was settled by a verbal concordat between the Chancellor and the Archbishop. The appropriation of supplies by the House of Commons (a matter far more important than the grant) was made permanent, because Charles did not want the money needed for the war to be seized to pay his private debts. A Civil List was established. A Habeas Corpus Act was passed, not to introduce the use of writs with that name, but to provide penalties against evasion thereof. Attainders became things of the past; even impeachments began to grow rusty, as may be shown by the elaborate arguments about the machinery thereof in Danby's Case. The payment of wages to members of the House of Commons by their constituents, which had been necessary in the early years to induce men to undertake the irksome business, which had been the cause of some unwillingness of boroughs to return members, but which, with the desire, growing from the times of the Tudors, to get for oneself, or for one's political *protégés*, seats in the House, had gradually declined, now came finally to an end. It gave the opportunity for the King to ease his relations with the House by distributing pensions and favours, a method of "influence" which grew steadily until, in the closing years of the eighteenth century, it was partly abolished, because of the increasing indignation felt by the party which at any given time happened to be out of office.

But, above all, the reign of Charles II. is the period of the "Popish Plot," not Oates's imaginary one, but the real intention of the King to restore, if possible, the religion of his mother, himself, his brother, his cousin, Louis XIV. of France, and of Ireland, to supremacy in England and Scotland. Hence his attempts at "toleration," by which orthodox Nonconformists gained fitful relief, and even the "Friends," whom those Nonconformists had so bitterly "persecuted" in their day of power in England, old and new. We need not go over the story. The design failed, at first because Charles was determined "never to go on his travels again," and then because James was willing to do so rather than undertake what was impossible. In 1688 William of Orange invaded the country with the connivance of the "Whigs." James II. became legally dead, his son was assumed to be an impostor, his heir succeeded, Mary, and she would not reign except conjointly with her husband. The revolution was checked. There was no change. A new question had arisen and been solved: Would we have a "Popish" King? An "Exclusion" Bill had been proposed in 1678, and after ten years was passed. A "Whig" was one whose zeal for Protestantism was a little more than his loyalty to the royal house, a "Tory" was one whose Protestant zeal was a little less. The decision cost blood and money. We need do no more than mention Killiecrankie and La Hogue to prove that point. The "Revolution of 1688" *was neither* "bloodless" nor a "revolution."

CONTINENTAL CONTINUATIO SCHOOLS.[1]

MISS BARGER'S account of the conti schools is opportune in the date appearance, especially in view of C in the Education (Scotland) Bill before the of Commons last session, a clause whi powers school boards to make bye-laws ing the attendance at continuation classe the age of seventeen of young persons "w not otherwise receiving a suitable educ Her account of these classes is valuable, as ing what sort of education is found to be able" for evening classes in such enlig centres as Baden, where continuation schc compulsory both for boys and girls, Zürich, where they are voluntary. Miss is not correct in saying (p. 13) that Bade only German State where attendance is sory for girls. It is compulsory now o whole of Bavaria, in Würtemberg, in V and Saxe-Meiningen. In other respe account is not only accurate but ei readable.

Continuation schools in Baden were firs lished by the State in 1874; from the fi have been compulsory both for boys an Every child on leaving the elementary sc the age of fourteen, unless it passes t higher school, has to attend continuation for three hours a week, the boys for tw and the girls for one. With us those wh need this further education are just those not voluntarily seek it, and the first great tage of the compulsory system is that th saved from themselves. The next adv very clearly brought out by Miss Barger, the continuation school does not have to the work of the elementary school. Th sents a striking contrast to the condi things at home. The third advantage employers are forced to allow their you ployees to attend, and as the organisa classes is according to occupation, the ho be arranged to suit the convenience of em *e.g.*, baker apprentices attend in the aft when the rounds for the day are over, an girls in domestic service have classes morning.

The subjects of instruction have direct upon the daily employment of the pupi Barger shows how this is carried out in districts and in the trade schools, and inci shows how these continuation schools operated to preserve and develop local in in large villages and country towns. F the course provided is wholly domest literary; the State evidently does not fav idea of training women for commerce discipline is freer and more friendly than elementary school, as it should be. Miss noted only one case of forcible ejection

[1] "Continuation School Work in the Grand Duchy of Ba Canton Zürich." By Florence E. Barger. 34 pp. Board of E Educational Pamphlets, No. 6.

to think what discipline would be in if compulsion were introduced and the ere flooded with unwilling pupils. The e of Scotland will be more relevant for hat of Baden, for your German boy is sly organisable when compared with his oeval.

has tackled the problem on voluntary et here, too, all employers of standing a condition of apprenticeship that their es attend the continuation classes in rs, *i.e.*, two mornings and two after- veek. This is a great help to regularity ance, as any case of absence is at once by the school to the employer. The oo, are kept in close touch with the and commercial life of the town. nany Swiss cantons have adopted com- all the Zürich teachers, without excep- in favour of the voluntary system. The pulsion they wish to see exercised is in of the employer who refuses to allow the time off. Miss Barger speaks highly ger and orderly spirit of work which difficulties of discipline do not seem to

own country it is satisfactory to note e are not yet ripe for compulsion, we ny rate, making progress. The Act of ich put the continuation classes under authority as the technical schools, has ossible to grade and correlate the work the evening schools of our big towns. e and effort is saved, pupils are entered es instead of isolated classes, and the the work is improved. The raising of ard seemed for the time to check the f the classes, but that was inevitable, tatistics show that it is now past. The ds now in England are:

secure that the children join the con- classes immediately on leaving the day ven in places which are most successful spect, like Manchester, there are still 50 per cent. who join after one year's onger.

secure the co-operation of employers, ially smaller employers. Until this is the further development of evening ay lead to serious intellectual strain e of fourteen to sixteen. The time yé of this age spends in the con- class should count as part of his day's

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ther Exercises in French Grammar. By F. M. S. 91 pp. (Dent.) 1*s.* 4*d.*—These exercises are upper forms, and deal with the syntax of the larly with the use of the moods and tenses. y of the exercises contain words in italics to or explained, or both, and a continued piece of d from a well-known French author, including ises, is introduced here and there. The last are devoted to the use of prepositions and to n of words respectively.

IBIS IN URBEM.

WHEN the melancholy Ovid finished his "Tristia," he prefaced it with the well-known line,

Parve, nec invideo, sine me, liber, ibis in urbem,

and, indeed, to-day the book has come down in showers upon the capital. London is full of series; classics in green and red woo shillings every day from the cheap reader. All our reading has cheapened; and the present decade scoffs at library editions, when it can buy its Ruskin and its Grote, its Darwin and its Sismondi, for a fraction of their old prices. We cannot tell if people read the books: we do not believe that people know and study them: but they buy them, and their dainty bookcases are part of the new simple life.

Before us lie two dozen (no disrespect is intended in thus arithmetically lumping the treasure of the brain) of "Everyman's" books. No need nowadays to say that they come from Mr. J. M. Dent, and that probably they were printed, sewn, pasted, bound, pressed and packed in the Garden City. Each costs a shilling, the sum which we have come to associate with the bound reprint. First comes some Ruskin: "Sesame and Lilies," "The Two Paths," and "The King of the Golden River" form one volume, and Sir Oliver Lodge writes the introduction. "The Elements of Drawing," with a preface by a student of Ruskin, and "Pre-Raphaelitism" and kindred essays follow; Mr. Laurence Binyon introduces the book. Mr. Selwyn Image, an old pupil of the Master's, writes a preface, enthusiastic and discriminating, for "The Seven Lamps." All the old illustrations we have come to know so well are in these volumes. We do not suppose that every man will read Elyot's "Governour," edited by Prof. Foster Watson, but many people will dip into it and will be rewarded. It is full of information in its nooks and corners, and is a second Montaigne. We welcome heartily the Spenserian version of the "Aeneid," by Mr. Fairfax-Taylor: it is a companion to Worsley, whatever we may think of the suitability of the stanza: it is in one volume. The second volume is by Mr. Royde, and includes the "Eclogues and Georgics" in blank verse. The translator contributes a preface and a concluding sonnet from that frequent source of admirable work, a bed of sickness.

I pass: but Mantua's reed shall murmur still
And in rapt ears ambrosial music sing.

Mr. W. F. Kirby has boldly translated the "Kalevala" into the Hiawatha metre in two volumes. No popular edition by an Englishman had appeared, though Mr. Nutt, in his "Popular Studies in Mythology," had highly praised this collection of Finnish epical songs; the translation was really needed. Dennis's famous "Cities of Etruria," in two volumes, is edited by Prof. Lindsay. The book has never been really superseded, for the Etruscan is even now a mystery; and, as the editor says, Dennis is al-

ways fresh and interesting. Tytler's "Essay on the Principles of Translation" is as admirable reading as it was when first published, and should go along with Matthew Arnold's famous essay. Does translation belong, like so many other efforts in art, to its own decade or century? It is a pity that this essay has not been revised as far as the Greek type goes: there is scarcely a Greek line quoted which does not bristle with mistakes in printing. An admirable reprint in two volumes is Thierry's "Norman Conquest," so much fuller of sympathy and hate than our primers and our larger books are to-day. The Bible is edited in four volumes, Law and History (two), Prophecy and Poetry (one), and Wisdom Literature. The text is the usual one; the apocryphal books are in their right places, and the rearrangement, though slight, adds to the value of the edition. "Ancient Hebrew Literature" is its title; Mr. Bruce Taylor supplies a brief introduction. It is a pity, we think, that Mr. Dent will not try a Shorter Bible for the use of schools, though we are well aware that as yet no such Bible has been welcomed.

Sismondi's "Italian Republics" and Dean Stanley's "Eastern Church" were both well worth putting within the poor student's reach: both are emphatically reference books. Lockhart's "Life of Burns," with a very brief introduction, is sure to be popular, for the selection of the letters at the close shows the poet on a side not generally known. Of course, other books on Burns have also to be read, if we need a biography of that "wandering voice." John Bright's "Selected Speeches" (one vol.) are taken from Prof. Thorold Rogers's edition. There is a great deal more to be published if every man is to know John Bright's English well; and this reprint might (if copyright allowed) have been made three times as long. "Inquiries into Human Faculty," by Francis Galton, is a slightly abbreviated reprint of the 1883 edition. It will certainly be welcomed, if only for the tardy awakening of interest in the subject of human eugenics, which Mr. Francis Galton has done so much to forward. Quite a small library of books dealing with new phases of old psychological questions might be published. They all are trying to regulate the clock of life.

"The Travels of Mungo Park" is always worth reprinting, for it appeals to the unrestful explorers who still come to our schoolrooms (even though out of place there), and to the missionary spirits, whose number no amount of education or external influences will, in all probability, increase or lessen. The last volume to notice is a revised reprint of Dr. Butler's "Ancient Atlas." It is well and clearly done; but though it sounds ungracious to say so, it is not "Everyman's" Ancient Atlas. Every man needs atlases, and maps of countries; much more does he need dozens of little insets dealing with special periods, wars, lives, and civilisations. Labberton made an attempt in this direction; but so far no c had the courage to print a dozen large m a hundred small ones. The same remark to English history, and more forcibly still two great periods of early and later m history. But a shilling is a shilling, and de Bury would, if he could, rise from hi to thank the publishers and editors of this which is probably but beginning its through the world—for as yet only a million and a half books have been sold.

ENGLISH LITERATURE.

REPRINTS, SELECTIONS, AND A HISTOR

WE will begin with the history (1); fo some features that distinguish i antly from the ordinary school his literature, which, like the world, "is to with us." It is not overburdened with dates, and details; it is not in the least pædia. But it gives a good general accoun development of English literature, and of t names and books about which every e Englishman and Englishwoman ought t something; it also contains many portra other illustrations. Though too diffuse t ideal class-book, it would be an excellent a to a school library and prize-list. One cor able feature is the "Literary Map of Eng which would have delighted Leigh Hunt, wh fully imagined this very thing in one of hi charming essays.

From the same American publishers, Heath, comes a daintily produced edition important and interesting Middle English "The Owl and the Nightingale" (2). careful and complete introduction, its d text (from the earlier manuscript in the Museum and the later in the Bodleian), i and valuable notes and glossary, Prof. edition exemplifies all the best qualities of can scholarship.

An old-fashioned title and a somewhat u

1 (1) "The Making of English Literature." By W. H. x+474 pp. (Heath.) 5s.

(2) "The Owl and the Nightingale." Edited by Prof. J. (Belles-Lettres Series.) lxix+258 pp. (Heath.) 3s 6d. net.

(3) "The Harp of Youth: a Book of Poetry for School a Edited by W. Jenkyn Thomas. 272 pp. (Nelson.)

(4) "A Treasury of Verse for School and Home." Selected a by M. G. Edgar. Part i., 128 pp.; part ii., 128 pp. (Harrap part.

(5) "Illustrations of English Literature." (The Carmelite "From Wyatt to Webster," by C. L. Thomson. xi+182 pp Herrick to Dryden," by G. B. Sellon. x+175 pp. "From Stevenson," by C. L. Thomson. ix+192 pp. (Horace Marshall each volume.

(6) "Stories from the Saga of 'Burnt Njál.'" Part i. "Th Gunnar." By Beatrice E. Clay. 187 pp. (Horace Marshall.)

(7) "The Saga of King Olaf." Selected and edited by Beatric 63 pp. (Blackie.) 6d.

(8) "Grace Abounding and the Pilgrim's Progress." By John The text edited by Dr. John Brown. viii+432 pp. (Cambridge Press.) 4s. 6d. net.

(9) "Alice's Adventures in Wonderland." By Lewis Carroll. illustrations by John Tenniel. Miniature edition. 201 pp. (M 1s. net.

(10) "Froissart's Chronicles: Border Warfare under Edward Richard II." Blackie's English School Texts, edited by Dr. Rouse. 124 pp. (Blackie.) 6d.

(11) "Matthew Arnold's Sohrab and Rustum." Edited, with duction and Notes, by J. H. Castleman. xvii+40 pp. (Heath.)

ling may injure the success of Mr. Jenkyn 's book of poetry (3). If so, it will be a ne. For the selection is made with taste gment; and though its editor expressly, e properly, defends the inclusion of "hack- pieces in a book for school use, there is roportion of unhackneyed matter, and all ry good. It was a happy idea to insert ons after famous pictures: G. F. Watts's Warrior" and "Sir Galahad" are welcome.

er school poetry-book is "A Treasury of r School and Home," by M. G. Edgar (4), mpleted in five parts. The first two parts re us, and in each the publishers offer a ul sixpennyworth—128 pages of large, e in a most attractive cover. The selection rather too many poems of the magazine distinguished from the eternal favourites, e is nothing that falls below a respectable l.

olumes of "Illustrations of English Litera- n "The Carmelite Classics" (5) might e described as Ward's English Poets and Prose-Writers rolled into one for the use eginner. But the selection is an indepen- e, and the needs and capacities of pupils fourteen and eighteen years of age have pt in view. Of the three volumes before two for which Miss C. L. Thomson is ble seem to come as near to perfection as ble. The poetry is chosen with an un- nstinct for the best; and the prose pieces ong enough to possess a certain complete- Miss Sellon has been less successful in "scrappiness."

ightful reading-book for small boys and "The Story of Gunnar" (6), adapted from asent's translation of the Saga of "Burnt y Miss Beatrice Clay, headmistress of the School, Chester. Miss Clay has also most welcome selection from "The Saga Olaf" (7), in Longfellow's "Tales of a e Inn." The introductions to these two are models of writing that is at once y and simple.

latest addition to the Cambridge English is Bunyan's "Grace Abounding" and m's Progress" (8), textually edited by the r. John Brown. The textual editing has ne with the care characteristic of this valu- ies.

rint sure of a hearty welcome is the minia- ition of "Alice's Adventures in Wonder- (9), which gives us for a shilling an un- d "Alice" in large type and with the illustrations, in a volume of the size of the n Treasury" series.

Rouse has added a selection from Berners' ion of "Froissart's Chronicles" (10)—the elating to border warfare under Edward l his house—to his English School Texts. efulness of these plain "texts" depends on the willingness and competence of the to supply the editing. In the hands of a teacher who will take the requisite trouble they may be very useful indeed.

A sixpenny "Sohrab and Rustum" (11) will, we hope, win new admirers for this noble poem, which experience shows to be a favourite with boy-readers. The notes are good; we could have dispensed with the "appreciations" prefixed.

THE TEACHING OF LATIN IN SECONDARY SCHOOLS.

THE report of the Classical Association on the teaching of Latin (p. 425) marks a distinct advance in educational progress. Coincident with it there is issued by the Board of Education a Circular (No. 574) on the same subject, the recommendations of which are almost identical. While the latter, however, deals only with boys' schools in which Latin is taught, but not Greek, and not with girls' schools, the report is concerned with two classes of schools: (*a*) the public schools (and preparatory schools leading up to them) with a leaving age of eighteen or nineteen, and (*b*) schools under a local education authority with a leaving age of about sixteen. Girls' schools are not definitely mentioned, and it is not clear whether the Classical Association shares the opinion of the Board of Education that the problem of girls' schools is materially different, and that the suggestions made cannot be applied to them without large modifications.

But both the report and the circular offer this clear gain. They define the position of Latin in education and suggest a reasonable course for its study. They should put an end to the long period of indecision with regard to it. In the old days Latin was the chief, if not the only, characteristic of a secondary school. But with the introduction of new subjects like modern languages and experimental science, its position required readjustment. The teaching of Latin, to justify itself, must fill a definite function and pursue its aims with scientific precision. The circular leaves no doubt as to the importance of Latin in the curriculum of a secondary school. It is

> an essential part of a complete modern education. No study of the development of European institutions is possible without a knowledge of Latin, for in it are contained the records of the development of law, religion, literature, and thought. Latin is an essential instrument for the educated use of the English language, and a knowledge of it is necessary to any scientific study of the Romance languages. A knowledge of the structure of the Latin language is the most valuable help to understanding the general principles of the European languages, and its regular and formal syntax is a valuable corrective to the loose phrasing which easily arises from the syntactical freedom of English.

The three objects of its study are again clearly stated in the circular to be:

> (1) A careful and thorough knowledge of the structure of the language; (2) acquaintance with some of the most important authors of the classical period; and (3) as much knowledge as can be obtained of the history and life of

Rome, especially during the century preceding and the century following the beginning of the Christian era.

These objects are to be attained first by the proper correlation of Latin with other studies, and secondly by improved methods of teaching Latin itself. Latin should not be begun until boys have received a thorough grounding in the elements of English grammar, the analysis of the simple sentence, and the main kinds of relative and subordinate sentences. If they know so much before they begin Latin, they may afterwards dispense with separate instruction in formal English grammar. Latin should be begun about the age of eleven. It should not be begun at the same time as another foreign language. French should be learnt for at least one year before, and Greek should not be begun until at least one year after. When begun, Latin should have a lesson, if possible, every day, but not less than four times a week. All this is excellent. Equally excellent are the methods of instruction set forth alike in the report and the circular.

The course of work falls into two sections. The first is preparatory, covering one or two years. In the second the student is introduced to the Latin literature proper. The limitation of the preliminary period to two years is of the utmost importance, as this enables the student who has but four or five years for the subject ample time for a sound acquaintance with the chief literature. The object of the preliminary period, as the report puts it, is the acquisition of the knowledge of "common words, common forms, and common constructions," *i.e.*, of the essentials of vocabulary, accidence, and syntax, which will be most often required in reading a classical author. Non-essentials and all irregularities except those most frequently recurring are to be eschewed. At this stage a boy wants, and should get, a sound working knowledge of the main facts and principles of the language. Details and minutiæ come later, and can be added as he goes along. The report wisely leaves to the teacher his discretion as to the precise method of instruction, but insists in the early stages on abundant oral work and plenty of translation and retranslation, usually in connection with the Latin text. The circular adds the vital principle that the work should be based throughout upon the study of complete sentences.

The courses recommended in the second section aim at broadening the usual course of reading and at giving a boy a better conception of the work of the great classical writers as a whole. If they be followed, a boy's knowledge of Latin at sixteen should be far less scrappy than at present, and he should get some idea of style and literary form. The whole report thus breathes an appeal to intelligence and common sense; it raises the teaching of Latin to a higher plane, and cannot fail of a far-reaching effect. But while it may have been an advantage to have considered separately the needs of the two classes of schools, in practice it will be impossible to draw any hard and fast line between them; many boys in public schools leave "at about sixteen," and many in the other secondary schools will go on with Latin to age. The books recommended for the two are much the same; the objects pursued vary in essence, but only in quantity; and t practical difference appears to be that or goes further in its reading than the oth latter besides making no attempt at con Latin prose or Latin verse. Any furth tempt at differentiation seems to be another difficulty to the two which are alli in the report. The first is that of co-ord the work of boys who come to the sec school later than twelve without having Latin, and the other is the want of cor teachers for the important elementary st learning the language. The association mistic enough to think that the increased will create an increased supply.

THE TEACHING OF SHAKESPEAR SECONDARY SCHOOLS.

THE newly formed English Association seems develop into an active society of teachers an anxious to secure improved methods of teac English language and literature. The list of offic prises the names of many authorities who have known for their efforts to make the study of literature a more attractive and important fe modern education.

Though the first general meeting of the associat held as recently as January last, there are evidences of the enthusiasm and activity of the e committee and members. Lectures are given fre to time by distinguished scholars; the next delivered by Prof. A. C. Bradley at University Gower Street, London, W.C., on November 6 p.m., and is open to members of the associat their friends.

The association has begun also the publication o designed to assist teachers of English in thei One of these is to deal with the teaching of Sha in secondary schools, and the executive commi sent out a number of suggestions—which are int form the basis of further discussion—in the fo provisional leaflet. We are permitted to pub suggestions, and we are hopeful that a study may lead many teachers to join the associati subsequently to assist in the discussions. Th general secretary is Prof. F. S. Boas, Cranford, Kent, and the hon. secretary and assistant t Miss Elizabeth Lee, 8, Mornington Avenue M West Kensington, W. Applications for forms of ship should be addressed to Miss Lee.

PROVISIONAL SUGGESTIONS BY THE EXECUTIVE COM OF THE ENGLISH ASSOCIATION.

I.

While some Shakespearean teaching may well fo of the lessons in literature at an earlier date, th of the plays as a regular part of the curriculum be deferred until the age of twelve. It should general as possible, and should not necessarily incl reading of the whole of any play. It should be co with (1) the stories of several plays; (2) selected p in these (some being committed to memory); (

s in their leading features so far as young boys can appreciate them.

ays suitable for such study between the ages of nd fourteen are limited in number, the themes of e.g., "Othello," "Antony and Cleopatra," , "Hamlet" or "Much Ado about Nothing") yond the pupils' experience and range of under-

From several points of view, the eleven plays elow are specially suitable, and some such order ollowing may be suggested: "Julius Caesar," erchant of Venice," "Twelfth Night," "King "A Midsummer Night's Dream," "The " "As You Like It," "Henry V.," "Richard lacbeth," "Henry VIII."

lected passages should be chosen at this stage poetic beauty as much as for their dramatic nd a song or a few detached lines may serve ose as well as the familiar sustained speeches. uld not at present be made a vehicle for gram- or linguistic instruction, only such explanation ven as is necessary to their comprehension. ime should be secured for Shakespearean work to the study of one play each term. This will e, as a rule, two lesson periods a week.

II.

pupils from fourteen to sixteen, considerable may be made upon the simple introduction which given at the earlier age. Pupils should be made d with the chief facts of Shakespeare's career conditions of stage-representation in his time. s of the plays named above may now be y studied in suitable editions at the rate of about s a year. Attention should now be centred on general dramatic conduct of the plot; (2) the delineation of character; (3) diction and metre; al difficulties; (5) references and allusions; es of the story, and their treatment by Shake- The following plays may now also be introduced school curriculum: "Richard III.," "Hamlet," nus," "The Taming of the Shrew," and "Much t Nothing."

III.

ixteen upwards the students should be competent some comparison between Shakespearean plays s of plays as well as comparison with other work known to the pupils. The class-work clude consideration of a number of plays; atten- ld be drawn to the special characteristics of the , Histories, and Tragedies, to the change in are's outlook and temper, and in his style and on; some introduction might be given to arean criticism and bibliography.

stage paper-work, followed by the teacher's , will form an important instrument of educa- addition, sustained *viva voce* discussion by the uld be encouraged. The difficulty of providing ooks for all the pupils can be got over only by selection on the teacher's part of readings from ng critics. It is advisable that pupils should however, one good text-book of Shakespearean ry. Every school in which work of a fairly nature is done should obviously possess a arean reference library. The English Association a later date to draw up a list of books suitable ion in such a library.

s teaching so often tends to be informative rather stimulate literary appreciation, a small point of practical method should be consistently enforced. A few minutes of each lesson, however interesting the points may be that formally belong to it, should be reserved for the reading of some fine passages from the plays.

A scheme of similar nature to that outlined above will enable a teacher to direct and modify his teaching so as to preserve due balance among the various aspects of Shakespearean study. If certain of these aspects be unavoidably or deliberately omitted from the teaching, it is well to know exactly which have been so omitted; and a teacher's scheme might usefully be presented to inspectors in order that misunderstanding may not occur as to what has been taught.

REPORT OF THE CLASSICAL ASSOCIATION ON THE TEACHING OF LATIN.[1]

THIS report falls into two sections, (*A*) that relating to the course of study in schools with a leaving age of eighteen or nineteen, and in schools preparatory thereto, (*B*) that relating to secondary schools under a local education authority.

(*A*) SCHOOLS WITH A LEAVING AGE OF EIGHTEEN OR NINETEEN, AND SCHOOLS PREPARATORY THERETO.

Preparatory Schools.—We have not felt it to be our duty to consider in detail the character or scope of the teaching that a child should receive in the early stages of its education, but we venture to express our conviction that it is desirable that the greatest importance should be attached at an early stage to the study of English. Before children begin the study of a foreign language they should have learned to use their mother tongue with some degree of correctness and fluency, both orally and in writing, and have acquired a good stock of words and a habit of orderly and connected thought. They should also have learned to read aloud with accuracy and intelligence, and, so far as possible, with taste; and they should have become familiar with a considerable quantity of good English prose and verse of a character suited to their age. A feeling for literature may thus be developed which, while of the highest value in itself, will also help the pupil afterwards to appreciate the classics. An elaborate study of English grammar is not useful at this stage. In English it is not form but function which in the main distinguishes the "parts of speech," and the chief aim of teaching should be to attain a mastery of the broad principles of sentence structure and the functions of words. The teaching of the elements of English should not be encumbered with distinctions which are not vital to English itself, but the fundamental grammatical notions should be taught in such a way as to prove a help when pupils approach the study of other languages.

Assuming, therefore, that the study of the mother tongue should precede the study of any foreign language, we desire also to direct attention to the disadvantages attending the common practice of beginning a second foreign language before the pupil has acquired an adequate knowledge of the first, and a third foreign language before the pupil has acquired an adequate knowledge of either the

[1] Report of a Committee of the Classical Association consisting of Prof. E. A. Sonnenschein (chairman), Rev. Canon G. C. Bell, Prof. R. M. Burrows, Rev. W. C. Compton, Miss Ethel Gavin (representative of the Headmistresses' Association), Rev. Dr. J. Gow (representative of the Headmasters' Conference), Mr. A. E. Holme, Sir A. F. Hort, Mr. E. D. Mansfield (representative of the Preparatory Schools Association), Dr. G. G. A. Murray, Rev. Dr. J. A. Nairn, Mr. T. E. Page, Mr. W. E. P. Pantin, Mr. A. B. Ramsay, Dr W. H. D. Rouse, Miss Adèle F. E. Sanders (representative of the Assistant Mistresses' Association), Miss Lucy Silcox, Rev. Canon R. D. Swallow (representative of the Headmasters' Association), Mr. W. F. Witton (representative of the Assistant Masters' Association), Mr. C. Cookson (secretary).

first or the second. The elements of three foreign languages taught concurrently take up a very large portion of the school day, and pupils of only average ability naturally make very slow progress in any of the three languages, and consequently tend to lose interest in their work and to do it mechanically. We think that better results would be obtained if it were recognised that learners should never begin two languages at or about the same time, but should have been well grounded in the elements of one language before beginning a second, and well grounded in the elements of the second before beginning a third.

An adult who desires to learn a language finds that he succeeds best by working at it every day. In the same way we think that the best results are obtained at school when a pupil beginning a new language has a daily lesson in it. We have, however, good reason to believe that so obvious a principle is often forgotten, especially in girls' schools as regards the teaching of classics, and in some boys' schools which attempt a very wide curriculum. Yet if several days are allowed to elapse between one lesson and another, the original impression is often effaced and the work has to be done afresh. The method which we are recommending also tends to keep the pupils interested in their work and encouraged by the sense of making progress. We think that as a general rule pupils should devote themselves to the study of their first foreign language for at least a year before any other foreign language is taken up, and to their second foreign language for at least a year before a third foreign language is begun. When, as will often be the case, a modern language taught colloquially and at an early age is the first foreign language studied, we think that the study of Latin should not be postponed beyond the age of eleven. Greek should not be begun until the pupil is at least able to translate an easy piece of narrative Latin, and is so familiar with the commonest inflexions and constructions that he can use them correctly in composing Latin sentences of a simple character.

The Study of Latin: Methods of Teaching.—In the early stages of learning a language great demands on the memory are inevitable, and there is always a danger of making these demands excessive by putting before the pupil a bewildering mass of unfamiliar words and inflexions. In teaching the elements of Latin, we should restrict ourselves to what is of frequent occurrence. The really useful words, inflexions, and constructions should be introduced gradually, and thoroughly worked into the pupil's mind by constant practice in translating from and into Latin. By thus concentrating attention on what is of common occurrence it should be possible for the pupil, in a comparatively short time, to acquire a working knowledge of the language such as will enable him to pass without great difficulty to the intelligent reading of a Latin author.

It may be worth while to point out that the principle of concentrating attention on what is common and essential is constantly violated in practice. If we study the grammar questions set in the scholarship examinations of some of the public schools or in university matriculation examinations, we find such forms asked for as the ablative plural of *filia*,[1] the accusative singular of nouns like *tussis*, *amussis*, the genitive plural of *accipiter* or *pa* gender of *gryps*, *hydrops*, or *acer* ("maple-tree forms of Greek nouns as declined in Latin, and non-existent comparatives and superlatives and "parts" of verbs, to say nothing of forms which, they occur in classical authors, are no necessary the mental outfit of the beginner. The method of ing to commit the whole of the accidence to me an early stage without practice in the use of th learned is kept alive by such questions, and the grammar is thus divorced from the study of actua A similar criticism may be applied to the teaching syntactical types, especially if they rest on i evidence, such as *non dubito quin futurum sit capiatur*. An examination of the Public School Scholarship papers, reprinted in vol. vi. of the Reports on Educational Subjects (Board of Ed will show that many of the sentences set in them well suited to test, as they should, whether the c possesses a practical knowledge of the common tions and a good working vocabulary.

As to the particular shape in which this pr common words, common forms, and common tions should be given, more than one method is The use of a classical author at the stage cont is, indeed, excluded by the fact that no classica satisfies the conditions; nor could extracts fi classics be made which would contain only the forms, and constructions required. But it is po present vocabulary and grammar either in the isolated sentences or in the shape of a connected specially written for the purpose. Perhaps the b is to combine the two—that is, to construct a ver narrative for translation into English and isolated s for translation into Latin. It is possible, thou easy, to write a connected narrative in which grammatical points are systematically introduced vocabulary gradually extended. The merits of this are that sentences woven together so as to form tinuous discourse need not be more difficult or u construction, and are from the nature of the ca easily intelligible in their context than isolated se that words, forms, and constructions embedded i text of meaning acquire a certain energy and impressing themselves on the memory which t in isolation; and that the mere interest of the s tributes to the acquisition of the art of reading, a from construing. On the other hand, exercises c of disconnected sentences for translation into La their value. It is easier, if the writer does not to form them into a continuous passage, to exactly the words and grammatical forms in w pupil requires practice, to concentrate his atte some puzzling construction, excluding for the tir difficulties, whether of vocabulary or grammar, reiteration to make him thoroughly familiar with is, perhaps, worth remarking that the pupil will n Latin from doing the sentences wrong: it is that, if approximate correctness is not attained, he rewrite the sentences in which he has made mista that he may retain in his memory the impressio idiomatic piece of Latin.

Public Schools.—In accordance with the recomme of our interim report presented in January, 19 Classical Association has adopted the principle " the lower and middle forms of boys' public schools should be taught only with a view to the intelligen ing of Greek authors." This principle, as we e

[1] *Filiabus* is not wanted for the purpose of reading Latin literature until the pupil comes to the "Civil War" of Caesar (where it occurs once, II. 108. 3, for the sake of distinction from *filiis*) and the 24th book of Livy (where it also occurs once, chap. xxvi. 2, according to the MSS.; but the reading is doubted by Weissenborn); and here a reference to the dictionary will give the information required. Elsewhere Livy uses *filiis* in the sense of "*daughters*" (XXXVII. 57. 2, *ex duabus filiis*); so too Plautus twice, *without any word to* indicate the gender, such as *duabus* ("Stich." 567, "*Poen.*" 1128).

port, does not exclude a study of grammar or ce of simple forms of composition as means to g of Greek literature. But in Latin the func- rammar and composition must be defined differ- y should be studied not only as a means to the reading of Latin authors, but also as a linguistic and with a view to training the mind in habits and logical thinking. Perhaps, however, what re emphasis is that the literary and historic the authors read should not be neglected even lier stages of learning. It is too common even esent day for teachers to set up a mechanical of Latin as a merely formal gymnastic, instead ng it as a literature capable of exerting a strong upon the pupil and of becoming a powerful for the training of taste, the development of and the awakening of intellectual ambitions. never be forgotten that Latin literature has ntributed to making the life and literature of ed world of to-day what it is. These two ends and literary study are, however, not inconsistent another. Latin may and should be so taught ise them both at the same time. The practice ition is of the utmost importance, not only as habits of clear thinking, but as giving a fuller o the spirit of the Latin language.

of the Study of Latin.—The ends to be kept in he study of Latin are, therefore, two: (i) the reading of the more important Latin authors; uistic and logical discipline. In connection with of these ends, the committee desires to direct to the importance of planning out the course g on some well-considered principle, so as to as profitable as possible and representative of st in Latin literature.

of Reading.—Considering the fact that the of pupils will not read many new Latin books have left school, the committee feels that annot be too careful in the selections which they uthors for study; much energy is wasted at the me by a haphazard method of procedure. The has therefore considered (*a*) which authors are h reading at school, and (*b*) in what order they taken, in view partly of their linguistic difficulty, the suitability of their contents for reading at ages. In drawing up the scheme appended to of the report, the committee has had the of the assistance of a number of experienced who have co-operated with a sub-committee for this purpose;[1] but the scheme is submitted specimen, and not as necessarily the best that levised.

ggestions of the scheme are based on the sup- hat the pupil will go through a preliminary work on a reader. Whether this preliminary ts for two years or one will depend on the method ng employed. If Latin is taken after some f French has been acquired, it may be possible he preliminary grammatical work to one year. two years will probably be necessary.

ing its selection of authors, the committee has ear in mind the claims of both subject-matter In most cases authors worth reading for their tter are also worth reading for their style (*e.g.*, Livy and Vergil); but where the two claims are to some extent opposed the committee has chosen such works as on the whole seem best suited to a particular stage of learning. For the earlier stages the interest of the subject-matter is of more importance than the beauty of the style; the capacity to appreciate style is developed later, and it is at the later stages that the style of the authors read begins to exercise an important influence on composition.

The committee has deliberately rejected certain authors as of inferior educational value—*e.g.*, in the early stage, Eutropius and Cornelius Nepos; in the middle stage, Sallust;[1] in the latest stage, the Silver Age epic poets, whose works it is thought should form no part of the school curriculum, but be reserved for university study.

The committee thinks that encouragement should be given to the practice of not limiting the amount of reading done in school to what pupils have time to prepare out of school. The conventional system of "prepared construing" seems to need considerable modification. The traditional course of reading may be widened if time is allowed in class for reading ahead after the translation of the passages set for preparation; but passages read as unseens in class may with advantage be set for revision out of class.

The principle of using selections may be safely applied wherever it does not involve scrappiness of reading—*e.g.*, it may be applied without sacrifice of unity to the Odes, Satires, and Epistles of Horace, and to the Elegies of Propertius. On the other hand, the principle of continuity should be more thoroughly applied than at present to certain works; the "Aeneid," for example, should be treated so far as possible as a literary whole, the several books being read in consecutive order, though possibly with some omissions of the less important parts, which might be read in a good English verse translation. In this connection the committee desires to direct attention to the important difference which exists between reading a book with some omissions and reading a collection of excerpts selected with a view to their individual beauty of thought or diction. By means of omissions it becomes possible in the case of long works, such as the history of Livy or the "Aeneid" of Vergil, to get a connected view of the story or message which the author has to communicate: whereas, if the attention of the pupil is confined to one or two books, he necessarily fails to get an idea of the work as a whole. To omit parts of a work which is too long to be read in its entirety is, therefore, the only practicable method of acquiring an understanding of its contents and unity.

A Specimen Course of Latin Reading.

I. Preliminary Stage (Ages Ten or Eleven to Fourteen).

First Year.—Preparatory course.

Second Year.—*Prose:* Simplified Caesar—*e.g.*, part of B. G. IV., V. ("The Invasion of Britain"); or, simplified Livy—*e.g.*, passages from Books II. and IX. The passages selected should form a continuous narrative. *Verse:* Some fables of Phaedrus (omitting the "morals," which are difficult) and some easy selections from the elegiac poems of Ovid.

Third Year.—*Prose:* Dramatic scenes and incidents from Livy—*e.g.*, passages from Books V., VII., VIII. (not simplified); or episodes (not simplified) from Books

committee consisted of Sir A. F. Hort and Prof. Sonnenscheir, h the following co-opted members: Prof. E. V. Arnold, Mr. C. Mr. Butcher, Mr. M. O. B. Caspari, Mr. R. C. Gilson, Prof. of. Mackail, Mr. M. J. Rendall, Miss Slater, Mr. H.

[1] The rejection of Sallust in favour of Livy has the support of Quintilian ("Inst. Orat." II. 5. 19). In answer to the question, "qui sint legendi incipientibus?" he says, "Ego optimos quidem et statim et semper, sed tamen eorum candidissimum quemque et maxime expositum velim, ut *Livium a pueris magis quam Sallustium.*"

V., VI., VII. of Caesar's "Gallic War." *Verse:* Stories from Ovid's "Fasti" and "Metamorphoses," or a miscellaneous selection of Latin verse.

II. Advanced Stage (Ages Fourteen to Eighteen).

FIRST YEAR.—*Prose:* Cicero: one or more of the easier orations, such as "In Catilinam," I., III., "Pro Lege Manilia," "De Provinciis Consularibus," "Pro Ligario," together with passages of some length from other speeches, such as the "Verrines," Actio II., Books IV. and V., and some stories of Roman life or easy letters of Cicero. *Verse:* Vergil, "Aeneid," I. and II.

SECOND YEAR.—*Prose:* Livy, XXI. and XXII. (as much as possible of these books, not omitting the battle of Cannae in the later part of Book XXII.). *Verse:* Vergil, "Aeneid," III., IV., and V. (considerable portions of Book V. might be taken for rapid reading in class); a few select Odes of Horace.

THIRD YEAR.—*Prose:* One of the longer speeches of Cicero, or part of the "Civil War" of Caesar, together with the "Somnium Scipionis" and the praise of literature in the "Pro Archia" (sections 12–32); the "Agricola" of Tacitus. *Verse:* Vergil, "Aeneid," VI. and parts of VII.–XII.; select Odes of Horace.

FOURTH YEAR.—At this stage there will naturally be much freedom of choice.

(*a*) The following books are suggested as necessary to complete the above scheme of reading. *Prose:* One or more books of the "Annals" or "Histories" of Tacitus; one or more books of a philosophical or rhetorical treatise of Cicero (*e.g.*, "Tusculan Disputations," Book V., or a book of the "De Oratore"); a few selected letters of Cicero. *Verse:* Horace: select Satires and Epistles; selections from Catullus and Propertius; Lucretius: Book V. and selections from other books; Juvenal: three or four Satires.

(*b*) The following books are suggested as less essential; some of these might be taken for rapid reading in class. *Prose:* Cicero, "De Amicitia" and "De Senectute"; Livy: some of the later books; Quintilian, Book X.; Seneca: a treatise such as the "De Clementia," or selections from the "Epistulae Morales"; Pliny: select letters. *Verse:* Plautus or Terence: one or two plays; Vergil: some of the "Eclogues" and "Georgics."

(*B*) SCHOOLS WITH A LEAVING AGE OF ABOUT SIXTEEN.[1]

Hitherto in this report we have had mainly in view those schools where the leaving age is eighteen or nineteen, and to which boys proceed from preparatory schools where both Latin and French are included in the curriculum. There exists, however, a large and increasing number of secondary schools of which the pupils, to a great extent, receive their early education in public elementary schools up to the age of twelve or thirteen, afterwards proceeding to the secondary schools for three or four years.

When it is remembered that on entering the secondary school the pupils have usually no knowledge of any language but their own, and must begin the study of mathematics, science, and other non-literary subjects, it is plain that the complete and systematic study of Latin, both linguistically and as literature, which is both desirable and attainable under the conditions of the schools hitherto dealt with in the report, will be quite out of the question in schools of this type.

Yet the teaching of Latin by such methods as will lead to results of permanent value at the close of a boy is desirable in such schools. The study of Latin training in clearness of thought and accuracy of e not easily obtained from the study of a modern l introduces the pupil to the life of the ancients, is sary preliminary to the study of the origin of institutions, and assists in the comprehension of literature.

The study of Latin in such schools has, in the with the opposition of many parents, largely be the older system of teaching the average boy rarel any real knowledge of the language in the time It will, therefore, be necessary rigorously to limit of the work attempted to what can reasonably b plished in the time available—not more than fou lessons a week for three or four years.

If in this time some tangible results could be by the average boy, such as the power of rea easier Latin authors and some acquaintance with life and history, the subject would be more pop it has been hitherto.

We therefore recommend that in these scho should be taught with a view to the intelligent of the easier Latin authors, and to supplying th pline in clear and accurate thought which is not obtained from the study of a modern language.

It is specially important to ignore all that is u in grammar, and to ensure a thorough knowledg grammatical forms and constructions commonly in the authors read, and not to use compositio as a means of understanding and remembering the and constructions. To gain these ends a scheme is recommended of which the following may be a sample:

First year.—A reader with grammar and exercis on the text and systematically graduated.

Second year.—Simplified narrative passages fro prose authors, with graduated exercises as before.

Third year.—Easy portions of Caesar and Cice selections from Tibullus or Ovid, together with and exercises as before.

Fourth year.—*Whole* books selected from the the following authors: Cicero, Livy, Tacitus cola"), and Vergil. Some letters of Pliny and Horace may be read. Or the books set for a tion examination.

The standard aimed at should be that of th Local examinations, or of university matricul preliminary examinations; and this would gen reached by those who had passed through the four course satisfactorily. It is important that, after year, reference should constantly be made to manual of accidence and syntax.

We are of opinion that not less than four period should be devoted to Latin, and strongly urge or a day where possible. The suggestion has been m time might be saved for this purpose if the form ing of English grammar were combined with tha Latin grammar and dispensed with as a separate

A difficulty will arise in co-ordinating the elementary-school pupils with that of the boys w been in the preparatory department of the secondar itself, since the latter will usually have learn French, if not some Latin, before the age of twelv difficulty is obviated in most schools by a separate cation for Latin and French, at any rate in th forms, by which means also the boys may be t smaller numbers for languages than for other

[1] In the preparation of this part of the report, the committee has had the assistance of a sub-committee consisting of the Rev. Canon Bell (chairman), Mr. A. E. Holme, Mr. W. F. Witton.

ntary stages of learning are the most important, ork should be entrusted to the most competent ienced teachers. Such teachers are at present schools we are considering, but, as in the case wer methods of teaching French, the demand less create the supply.

RESOLUTIONS.

basis of the above facts and suggestions, the submitted certain resolutions for the considera- general meeting of the Classical Association on 9th. Eventually the following were adopted:

it is not desirable to begin the school study reign languages, ancient or modern, at or about time.

in the earliest stage of teaching Latin and teacher should aim at making his pupils very ith such words, inflexions, and constructions as st commonly in the authors, and especially the r, to be read at school.

the scheme of reading in Latin and Greek ould be carefully organised and graduated with to the selection of such authors as are suitable of both their language and their subject-matter nt stages of learning, (2) to the literary and value of the authors or parts of authors selected. a view to the attainment of this object, the same rrative, prose, or verse should be selected as far for the younger pupils.

TORY AND CURRENT EVENTS.

s a "Dominion"? We ask for information. two "dominions" in what appears to be a neaning of the word, the old "Dominion" of nd the new "Dominion" of New Zealand. is not a "dominion"; it is a "commonwealth," is the only other federated part of the British The word must have *some* meaning; else why nada congratulate New Zealand on her accession le, and New Zealand reply that she "heartily r elder sister and hopes to follow in her foot- It cannot mean a federation, for New Zealand ry State; and so, for the present, we "give it t why should New Zealand want to be a n," whatever it means? Is it because she thus secures herself against any temptation to "Commonwealth" of Australia? There are sand miles of salt water that formerly were her or holding aloof; and now Western Australia seems to be repenting of her entrance into the he "Commonwealth" of Australia does not ttract New Zealand.

like must work together in one same allegiance of country. Then our German nation will be- block of granite upon which the Lord our God up and complete His work of civilising the hen, too, will be fulfilled the words of the poet : 'The German spirit will one day prove the lvation.'" It has been the fashion to laugh at t German Emperor and his ideas for Germany, ps that is only because he puts those ideas in which has gone out of fashion among ourselves. arly believe in the "Anglo-Saxon" mission to e world, and we even think our peculiar methods ment suitable for all sorts and conditions of men. e the seventeenth century, we have ceased to is in the language of religion, at least in the older sense of that word. But is not that because, with the growing intensity of the "nationality" idea, that system of thought has become itself a religion? Certainly it has, in each country, its demigods, its creeds, and its intolerance, all marks of the early stages of religion.

THE specific subject of history, considered as a branch of science, is the phenomenon known as the State. As the botanist studies plants of all kinds, and the astronomer studies stars, so the historian studies States. But the unsatisfactory nature of the science of history is shown by the difficulty in defining the word "State," and by the objections made when one desires to include under the definition bodies of men not usually known by that name. Suppose, *e.g.*, that we define it as "a body of men united together under one Government, which has power to enforce its decrees," and quote, by way of example, a cricket team under the command of its captain. We are charged with mere trifling. We grant it is not a very high type of a State, but the botanist does not reject low types of plants. What, then, are we to say, as students of history as a science, to this: "At Fenagh, county Leitrim, in September last, Mr. T. F. Smyth, M.P., appeared before the executive of the South Leitrim United Irish League to answer charges made against him by the Carrick-on-Shannon branch of having acted as auctioneer of certain meadows . . . in opposition to the desires of the local branch of the League. After heated discussions, apologies from Mr. Smyth were accepted"? Why did Mr. Smyth go, and why did he apologise, if the League were not able to enforce its decrees?

WE have travelled far nowadays from the doctrines of *laissez-faire* and the Manchester School. Then we thought that government had nothing to do with industry and commerce but let them alone. That was because the hindrances imposed by old-time regulations were hopelessly out of date, and were simply hampering the new advances. But the theories of Bentham and his disciples were, as all political theories are, put forth as eternal truths, everywhere and everywhen applicable. Even then the beginnings of doubt were expressed in Factory Acts on behalf of women and children; but it was long supposed that grown men were capable of taking care of themselves, and wanted no statutes to protect them against exploitation. That position has now been abandoned, and the last stage, so far, has been reached in the return to what would, fifty years ago, have been called grandmotherly legislation in the proposals of Australia to "impose an Excise duty equal to half the Customs duty on all goods manufactured in Australia, the Excise to be remitted when the conditions under which the goods were manufactured were fair and reasonable."

ITEMS OF INTEREST.

GENERAL.

So the Register, which has for so long been a subject of discussion among teachers, is to disappear. The *coup de grâce* was given to it by the Education (Administrative Provisions) Act passed last Session. The new register for which the Act provides is to contain a list of all teachers in one column. The distinction between Column A and Column B, which has caused so much heartburning, will exist no longer. But there is to be a separate column, in which will be recorded the "attainments, training, and experience" of each teacher. To establish and maintain this register a new Registration Council will come into existence, which is to be representative of the whole teaching profession. The composition of this council will no

doubt be closely watched by all educational associations. It will be interesting to see whether such associations as the N.U.T., the Assistant Masters' and Mistresses' Associations, and the Headmasters' Association will be allowed representation *qua* associations, or whether representatives of the various classes of teachers will be chosen without regard to their being members of these bodies. Again, on what principle will the number of representatives allotted to each class be fixed? These and other like questions will need, and will no doubt receive, careful consideration by the Board of Education. Whatever may be decided, it is to be hoped that the new register will receive the support of the whole profession in a larger measure than did the old, and will prove a means of securing for it the status and recognition which it should have.

A MOVEMENT is on foot to establish a General Educational Congress, to be held annually in London, on some date in January. For this purpose some centrally situated building would be chosen, in which all educational associations might hold their annual meetings, and also unite in holding a joint congress to discuss matters of general interest. Sectional meetings, of course, might also be arranged. To make such a scheme really successful, the co-operation of all the associations concerned is needed; otherwise it will mean only the addition of another to the already long list of isolated educational bodies. Though there are manifestly difficulties in the way of its realisation, the idea of bringing together for discussion and interchange of views the different sections of teachers and others interested in education in this way is distinctly a good one. At present, we believe, though many associations have provisionally approved of the scheme, it can hardly be said to have assumed a practical shape.

IT was only natural that attention should have been directed to the future position of the college and to the status of its existing associates at the annual distribution of medals and prizes of the Royal College of Science, London, on October 3rd. On the same day a letter from an associate of the college appeared in the *Times*, in which the possibility of the abandonment of the name "Royal College of Science" and the associateship of the college was discussed, and the steps taken by a large body of past associates to bring the facts of the case before the authorities were detailed. The Charter establishing the new Imperial College of Science and Technology—in which the Royal College of Science, the Royal School of Mines, and the Central Technical College are to be incorporated —contains certain definite provisions. The charter provides for the retention of the name and associateship of the Royal School of Mines, and that the institution hitherto known as the Central Technical College shall assume the name of the City and Guilds College, and that the privilege enjoyed by the City and Guilds of London Institute of granting diplomas shall not be affected by the new arrangements. The Royal College of Science is treated exceptionally. There is no provision for the retention of its name, no specific instruction as to the continuance of the widely recognised diploma of "Associate of the Royal College of Science," and no arrangement for the preservation of the privileges of existing associates.

MANY references were made to this letter at the prize distribution of the Royal College of Science. The Dean thought the letter had been written "a little hastily and in a moment, apparently, of irritation"; but the course of action referred to in the letter has extended, we hear, over several months. Sir William White urged the writer of the letter to consider the matter from a national point of view, and other speakers mentioned the letter in general terms. But the specific points put temperately by the *Times* correspondent were l touched. We understand that past students sh widespread desire to create a great Imperial colleg will focus present endeavours to provide the highe of training in pure and applied science, and exten ing facilities. They recognise fully the difficulti which the new governing body is confronted, and sincerely that national well-being is the primary co tion to be borne in mind. This attitude, however inconsistent with a desire for equality of treatm still remains necessary for the authorities to expl what is right and proper for the Royal School o and the Central Technical College is unnecessary desirable for the Royal College of Science.

THE Board of Education has issued regulati syllabus for the preliminary certificate examin December, 1908, and March-April, 1909, and certificate examination of December, 1909. Applic sit at either examination will be received up to Au without fee, during September with a fee of 5s., a wards, if places are available, with a special fee The lists will be alphabetical and without class but will specify the subjects in which candida obtained distinction. Despite the difference in the ages of candidates, the two syllabuses are similar some subjects identical, though candidates for th cate will be expected to show a more thorough principles than is demanded at the preliminary e tion. In history, the section on civics has bee ferred from the preliminary to the final stage. Th has for so long had the monopoly of the worst ge syllabus in the examination world, that the new course here set out deserves a warm welcome. Ind may question the value of some of its details, b course for elementary teachers it appears quite and well proportioned. The science syllabuses ha been overhauled, and are now unified. Examine take the introductory section, and may offer, in chemistry or physics or botany. An interesting mental course of rural science and gardening certificate candidates, alternative to this. Be study of the essentials of botany, the work to b *the garden* includes the practical cultivation of kitchen vegetables, and the various methods of pr plants. The experience of many teachers goes that this is a valuable innovation, likely to indu of scientific study in those rural teachers who no previous opportunity for its pursuit. The nee a course is shown in the lack of persons com deal with rural science in village day and evening this gap should soon be filled. The latest regulations are an improvement upon those o years, and if the standard of the examination is raised, the Board of Education will have done wel

THE new scheme of scholarship examination a more School, to which reference was made in for August last (p. 308), proved very successfu underlying principle of the scheme is non-specialis the case of boys under the age of fourteen or four a half years. The reports of the members of the committee have been presented to the governor school and published for distribution. Mr. C Brereton, who was a member of the committee, d the whole work of selection in another part of th issue, and it is unnecessary here to give further pa

THE Child-study Society, London, which was formed by the amalgamation of the Childhood Society and the London branch of the British Child-study Association, commenced its meetings for the present session last month. Lectures will be continued during November and December, and the subjects selected should appeal specially to teachers. Dr. J. W. Slaughter will discuss play as a factor in education; Mrs. Scharlieb, who is specially qualified to deal with the question, will lecture on the physical training of adolescent girls; Mr. A. H. Hogarth will describe the school clinic; Prof. John Edgar will take for the subject of imitation and individuality in children; Mr. Francis Warner will speak on the constitutional development and social progress of boys and girls from infancy; and Miss Alice Ravenhill will announce some results of an investigation into the hours of sleep amongst elementary-school children in England. Particulars as to the dates of the meetings and tickets of admission may be obtained from either of the honorary secretaries, Miss Kate Stevens and Mr. W. J. Durrie Mulford, at the Parkes Museum, Margaret Street, London, W.

AT the recent annual meeting of the Union of Lancashire and Cheshire Institutes, Mr. J. H. Reynolds, director of higher education, Manchester, read an important paper on a plea for the more systematic organisation of evening schools. He pointed out that the number of pupils on the rolls of the elementary schools of England and Wales was, in 1905, 6,070,530, while the average number in attendance was 5,249,485. The number of pupils remaining in the schools at thirteen years of age is estimated at not more than 300,000, whereas it ought to be not less than twice that number. In the sixth standard and above it there are fewer than 330,000 children enrolled; whilst in Manchester only one-ninth of the children are above the fifth standard. That is to say, a very large number of children fail to reach any standard beyond the fifth, and leave school just at the very time when their minds are becoming more receptive to knowledge and their powers of appreciation of its purpose and results are increasingly great.

THERE is evidence, Mr. Reynolds maintains, of satisfactory, if slow, improvement in the attainments of students entering the evening schools; but it is still a matter of well-founded complaint on the part of teachers that they are compelled, by reason of the inadequate knowledge and insufficient previous training of the students, to spend the greater portion of the session in dealing with subjects of a purely elementary and preliminary character rather than with the special studies in which the student is interested, and for which the teacher is expressly engaged. The evening school in the present circumstances must, under very difficult conditions, supply the deficiencies of the elementary schools—due to the short stay of large numbers of pupils therein, and to the fact that many students do not seek the evening school until two or more years have elapsed. It is of the utmost importance to secure as a first step the enrolment of the scholar immediately he leaves the day school in the classes of the evening school. This is done in Manchester, with a fair measure of success. A return of scholars leaving the elementary schools is supplied weekly, and a free ticket is issued giving such scholars free admission to a continuation school. In succeeding sessions the pupils pay their own fees, and it has been found that 50 per cent. of these free students continue their studies.

MR. W. B. STEER, of Derby, is this year the president of the National Federation of Assistant Teachers, and he delivered his presidential address at the recent conference of the association at Leeds. Summarising the results of the 1902 Education Act, he said: "The 1902 Act has belied its promises; the secondary system has not been democratised; there has been no striking improvement in our primary system; the wide gulf between the two has not been bridged over; large classes still prevail; unqualified teachers still abound; clericalism still stands in the way; bureaucracy is an added element of danger; democracy is exercising but a shadow of control." Referring to the demand for economy in the administration of elementary education, he remarked that "the clamour for economy is met, not by any curtailment of expenditure upon excessive officialdom, but always, everywhere, by the dismissal of class teachers or by the curtailment of their already meagre salaries. Economy is effected, not by a cessation of expenditure upon the trappings and ornamentation of the educational machine, but by a serious interference with the effective parts of the machinery. Money spent on education offices, on education secretaries and advisers, on agenda papers, on clerks, on inspectors, whether Government or local, on buildings, on apparatus, on stationery and attendance officers, on elaborate returns of attendance and on reports, is money absolutely wasted unless there are competent, earnest teachers in the class-rooms, and many economies could be effected in mere paraphernalia if the question of cost were but faced in the spirit of true statesmanship."

MR. STEER also considered the question of the unattractiveness of the profession he represented. In his judgment, "the inadequate remuneration of the teacher is the real cause of the inadequate supply, and money now lavished on futile attempts to make the profession look attractive would be better spent in making the attraction real. The medical profession shows no shortage of supply, and the country does not find it necessary to provide bursaries for its future doctors. The country's money is not being spent in securing its future supply of engineers or lawyers. To the young man of fair ability industry will bring promotion and content. It is only in the teaching profession where arduous toil on the steeps does not bring sure repose on the summit; and until the prospects of fair remuneration are greatly improved there will ever be periodic recurrence of a shortage of supply." The president's concluding remarks, however, struck a higher note. Speaking to his colleagues particularly, he urged them on to better things, notwithstanding small salaries, irksome regulations, and scant recognition. "Teacher," he said, "toil on, and in thy toil rejoice. Do not lose your enthusiasm; do not yield your ideals. For you 'tis ever to toil on the steeps, and though for you the repose on the summit may never come, still toil on. Be ever loyal to your task; be ever loyal to the child. True reward for your work may never come—indeed, can never come until the eternal balance assesses it at its true worth. Still toil on. Your labour is its own reward."

PERSONS interested in the special period of British history prescribed for the English Teachers' Certificate Examination for 1908 might profit by the first three papers in the series of "Teachers' Notes on British History" which Mr. C. S. Fearenside is contributing to these columns. These will be found in our issue of December, 1906 (preliminary survey); March, 1907 (1688–1748); and June, 1907 (1748–1783). The papers, together with the fourth dealing with the years 1783–1815, which appears in the present issue, cover the period of British and foreign history prescribed for the Joint Board Examination next summer.

THE following resolutions were passed at a recent meeting of the Commercial Clerks' Society held in Berlin: (1) That attendance at commercial continuation schools should be compulsory for all persons engaged in commerce up to their eighteenth year, and for both sexes. (2) That the commercial continuation school should have power to refuse admission to those insufficiently prepared. (3) That when a merchant does not possess sufficient knowledge to train an apprentice, the right to take apprentices should be withdrawn from him. (4) That the ratio between the number of clerks and the number of apprentices be settled legally by commercial committees. (5) The examination of apprentices at the end of the course should receive official recognition. (6) That commercial inspectors be appointed to check the hours of work, and the conditions of life for those who reside with employers. (7) That attention be given to the erection of homes for clerks in which their education, amusement, and exercise will be properly supervised. (8) That a thorough revision of private commercial schools and their methods, though necessary, can only be made on the initiative of the Imperial Parliament. Until this occurs local authorities must be warned to keep a strict eye on the work of the private schools.

THE Birmingham and Midland Branch of the Classical Association has invited the association to hold its next general meeting in Birmingham. The resolution conveying this invitation was proposed by the Bishop of Birmingham, and seconded by the Lord Mayor of Birmingham, at a meeting of the committee of the branch, together with friends of classical education in the city and the neighbouhood, held near the end of September. Mr. Asquith has accepted the office of president of the association for the year 1908.

WE have received from Mr. Ch. V. Jogarao, of the Maharajah's College, Vizianagaram, a pamphlet entitled "A Plea for the Translation Method." To those who have been following recent developments in modern language teaching, it will be interesting to know that this burning question is being discussed in India in connection with the teaching of English. Mr. Jogarao's arguments hardly contain anything novel, and will certainly not convince our reformers here. The matter is at present being discussed in the columns of our contemporary, *Modern Language Teaching*, and we understand that it will also be prominent among the subjects to be dealt with at the annual general meeting of the Modern Language Association, which will be held in London early in January.

THE October number of the quarterly *Science Progress* (Murray, 5s. net) contains several articles of considerable interest to the general reader. In a paper on "Bread," Mr. A. E. Humphries describes the modern improvements in the production of this important article of diet. He states that in the case of every type of wheat used the white flour of commerce yields more nutriment to the body than wholemeal. In a review of recent study of the factors controlling the supply of food fishes, Mr. J. Johnstone explains the curious fact that marine flora and fauna are both most abundant in cool waters. It appears that in the warmer seas the greater activity of the bacteria of denitrification causes a scarcity of the ultimate foodstuffs of the diatoms, &c., on which fishes directly or indirectly subsist. The articles on "Economic Entomology" and "Economic Ornithology" by Messrs. R. Lydekker and F. V. Theobald respectively, that on "*Photomicrography*" by Dr. Alcock, and that on "Insects and Fungi" by Mr. T. Petch, are also of interest. Recent research on more severely technical subjects is admirably dealt with in the essays of Prof. on "The Pineal Gland," Prof. Hartog on "The Cell," Mr. A. Harker on "Igneous Rock-magma F. J. Lewis on "The Sequence of Plant Rem British Peat Mosses," and Mr. W. C. Worsdell o Origin of the 'Flower.'"

MR. W. L. EVANS, in discussing the atomic t *School Science and Mathematics* for October, ur if the theory is introduced to students at too early they are apt to confound the theory with fact, arrive at the stage when they believe that m actually made up of small particles called atoms; remarks that this difficulty arises through the spondence between fact and theory being so compl the former is regarded as a proof of the latter. proceeds to point out the services which the atomi has rendered in the development of the science istry. Further paragraphs explain briefly how i tions on the discharge of electricity through gases the existence of masses which are sub-atomic in c and reference is made to the absence of proof of lute uniformity in mass of every ultimate atom same chemical element. In contributions on "Th istry Note-book," Mr. H. S. Reed maintains that rule for keeping note-books can be applied, s student's welfare depends so much more upon the ality of the teacher than upon his method of re details. He deprecates the use of "set form books, in which blank spaces are left to be fille the student; he insists upon lots of good draw essential parts of apparatus, and suggests a me periodically "grading" the note-books of a class of laboriously marking each exercise. Dr. W. C writes upon the ideal conditions for teaching These ideals are: (i) the teacher's mastery of the (ii) adequate time for his work and study—scho mittees erroneously think that the more teache the better they earn their wage; (iii) not too man in a class; and (iv) freedom in method and syllabu

THE annual general meeting of the Associ Teachers in Technical Institutions will be held on 9th, at 3 p.m., in the South-Western Polytechnic, London.

THE Civil Service Commissioners announce an tion for assistant examiners in the Patent Office. tions must reach Burlington Gardens not la November 6th. November 21st is the last day fo in applications to sit for the forthcoming examin not fewer than 110 appointments as assistants o This examination is the second under the new other particulars of these appointments appeared SCHOOL WORLD last November.

SCOTTISH.

THE precise meaning of article 42 of the new tions for the training of teachers has all along matter of grave doubt. The generally accepted v that all teachers in secondary schools would be rec *ipso facto*, as qualified to teach higher subjects. have been well to rest content with this under until the Department had clearly shown that thi wrong interpretation. Unfortunately, certain sec teachers have asked for a definite ruling on the and Circular 406 is the reply. By the terms circular it would seem that it is only a very sm

isting teachers who are to receive recognition of the article, viz., those "with a genuine ualification" and holding "important and ositions."

lefinition is quite as vague as the old, but it that the number of individuals that can come xceedingly small. Teachers, therefore, all over are gravely apprehensive of the effect of the upon their present and future professional protests against a literal interpretation of the l above are coming in from every section of veryone must sympathise with the principle of adequate qualifications from all teachers, aged in primary or secondary schools, but all ald have regard to present conditions and to rests. It will probably be found that teachers more into the regulations than the Depart-. There never was a time when the interests were more sympathetically considered than at if the profession will only have patience it id that no real injustice will be done to any y the Department's interpretation of either Circular 406.

n of the Edinburgh School Board in instituting ry propaganda to arouse interest among nd employees in the continuation classes of ght well be followed by other centres. A re- of the School Board, a headmaster who was freed from his school duties, called upon more nployers of labour in the city, explained to ail the nature of the work carried on, and in r case secured their aid in placing before their the importance and necessity of attendance at of these classes. In addition, numerous meet- nployees, both adults and apprentices, were y members of the School Board, who have this duty with great earnestness and success. attendance for this year shows an increase of over that of last year.

circulars have been issued by the Education in regard to the next written examination for tificates, which will begin on April 7th, 1908. on of teachers is specially directed to the modifi- posed in the character of the examination papers classics, and modern languages. History and are still to be integral parts of the English ne lower grade, but in the higher grade three be set, one in English, one in history, and one hy. In classics no change will be made in the e paper, but in the higher grade two papers , two hours being allowed for each. In the de paper in Greek, two passages of verse will be set for translation, and one of them will act from Homer, as formerly. The liberty of ween these two passages is now withdrawn, and must attempt both. In modern languages two wo hours each will be set on the higher grade A dictation test will be included for the first as formerly, candidates will be required to in the foreign language a story that has been to them in English.

stion of university reform has been so long dis- peech, that it seemed as if it never was to be l into action. The governing body of Glasgow however, under the direction of its new chief, MacAlister, has prepared an ordinance which gives practical effect to the main contentions of university reformers. The academic year is to extend from October 1st to the end of May. For the present compulsory winter and optional summer session there is to be substituted a three-term session, with breaks at Christmas and Easter. The number of subjects for the Arts degree is reduced from seven to five or six. Every student must give an intensive study over two sessions to one or two subjects of the curriculum, and a higher standard will be exacted in such subjects. The ordinance does not touch the question of the preliminary examinations, but it is stated that a separate ordinance is being prepared dealing with that subject.

THE Education Department has issued a circular to teachers and managers dealing with the new requirements in history and geography. Accompanying the circular is a specimen paper in each subject. The first impression one has of the history paper is that the field is far too wide to be covered successfully by the average secondary-school pupil. It includes, in addition to English history, Greek and Roman history, European history, and a detailed knowledge of Scottish history. A careful study of the questions, however, shows that the world's history, other than British, requires to be known only in its broadest aspects, and it is certainly not too much to ask pupils to locate in time events of such far-reaching influence as the Capture of Constantinople, the Invention of Printing, the Discovery of America. The questions on Greek and Roman history will be heartily welcomed by classical teachers, to whom this part of the subject will be gladly left by their English colleagues. The papers on geography represent the new spirit in its best form. The questions set are all directed to bring out the intelligence of the pupils, and to test their knowledge of essential principles and their practical application. But, as Thring was fond of saying, "Time is the lord of all progress"; and where is the time to be got for the greatly increased demands of these two subjects?

THE annual general meeting of the Educational Institute of Scotland was held this year in the McEwan Hall, Edinburgh University. In the course of his retiring address, the president, Mr. John Mudie, Dundee, referred to the repeated failures of the Government to pass an Education Bill. There had been plenty of playing with the subject, bringing forward Bills that were never really meant to pass, but made an effective bit of "window-dressing." All this they had had five times over, but no real determined effort to give Scotland her long overdue measure of educational reform. Mr. Mudie did not seek to apportion blame for this condition of things, but he indicated very clearly that on the Secretary for Scotland would rest the responsibility if he allowed another session to pass without a whole-hearted endeavour being made to bring the educational administration of the country into line with present-day needs.

THE subject of superannuation was the *pièce de résistance* in the day's programme. The official demand of the institute is that the Government should contribute from moneys accruing to Scotland sums equal to those granted by school boards to retiring teachers, always provided that the total pension from all sources will not exceed two-thirds of the teacher's salary at the time of retiral. A small, but by no means insignificant, section of teachers has opposed this principle, and has asked that all teachers should receive the same pension, regardless of retiring salary. At the general meeting there was a full-dress

debate on this point, and the meeting resolved by a practically unanimous vote to support the action of its executive. It is satisfactory to find the threatened schism in the ranks of the teachers thus averted. Superannuation is not a popular subject with any Government. If it is dealt with at all, it is always of necessity and not of choice. If teachers break up into rival camps on this subject no Government will feel impelled to deal with the subject. Union is strength at all times, but never more than at the present crisis.

IRISH.

THE exhibition and prize lists of the Intermediate Education Board for 1907 are distinctly disappointing. Never have so few exhibitions been awarded; and many candidates whose marks any time in previous years would have secured them an exhibition have to be content with a mere prize. Exhibitions are, as usual, awarded only in the senior, middle, and junior, and not in the preparatory grade. There are in each grade two classes. The values are: senior grade—first class, £40; second class, £20; middle grade—first class, £25; second class, £15; junior grade—first class, £15; second class, £10. The numbers awarded are as follows:

	Boys	Girls	Total	
Senior grade, first class	18	7	25	41
,, ,, second class	14	2	16	
Middle grade, first class	19	11	30	57
,, ,, second class	30	7	37	
Junior grade, first class	24	13	37	124
,, ,, second class	69	18	87	
Total	174	58	232	

THE corresponding totals last year were: boys, 279; girls, 106; total, 385. The *Irish Times*, commenting on the difference between 1906 and 1907, said in a leading article that the Commissioners "ought to have given notice of the proposed reductions. Their results may mean the serious upsetting of the plans of many youths and girls who are now hovering on the verge of their careers in life." The number of prizes awarded is very nearly the same as last year; the values are £3, £2, and £1 in all the three grades, and the numbers awarded are:

	Boys	Girls	Total
Senior grade	40	13	53
Middle grade	65	29	94
Junior grade	142	55	197
Total	247	97	344

Last year the totals were: boys, 230; girls, 87; total, 317.

AT the end of September the new buildings of Queen's College, Belfast, were opened, by which the single laboratory is replaced by eight laboratories fully equipped and up to date. This enlargement is mainly due to the Better Equipment Fund, which now amounts to more than £70,000. The laboratories now consist of the "Harland Laboratories" for physics and engineering; the "Donald Currie Laboratories" for chemistry, with a sanitary science museum; the pathological or "Musgrave Laboratories"; the physiological or "Jaffe Laboratories"; the medical buildings, with a new lecture theatre and operating room; and the natural history, biological, and geological laboratories. Lord Kelvin, who had promised to open the new buildings, was unable to be present, but his address was read, in which he traced the development of the Queen's College in Belfast, and strongly urged that the time had now come when it should be converted into the University of Belfast. Sir Christopher Nixon, Vice-Chancellor of the Royal University, while he did not object to Belfast having a university of its own wished, pleaded for the solution of the university on the lines recommended by the Robertson Com viz., a reconstituted Royal University with an college for Roman Catholics.

MR. BIRRELL made his first public appearai autumn by opening early in October the new N Technical School at Kingstown. This has been e the cost of £5,500, secured on the rates. The nu pupils last year was 441. In a somewhat d address the Chief Secretary commented on the dis tion with the intermediate awards, and declared was quite sure that the examination system req be reorganised and reconstructed. The efficiency mediate schools must, he supposed, be tested by sc of examination, and the problem was to find a whereby the teacher and the examiner would co the object being to find out how far a class had by the instruction it had received. It was on t lines that he was anxious to have a new unive Ireland, open for the teaching of all classes of stu

A PRACTICAL difficulty in the development of instruction in Ireland is the want of money for l The new Kingstown buildings, for example, m an annual sum of £200 must be deducted from th to pay the interest on the £5,500 borrowed. Mr Russell, the new vice-president of the Departn reply to a deputation in reference to this matter c for buildings, declared that Ireland was at a disa as compared with England, because she was at l years later in the field. When buildings for t instruction were raised in England with the "v money, Ireland was not ready, and the money was primary and intermediate education. Both these l of education are still under-endowed. The only m Department has for science work is ear-marked— a year for technical education, £7,000 out of the ment grant, £25,000 for secondary schools, and for the new evening classes. The question of grants was a matter for the Treasury; this would to £250,000 for fifty urban districts, besides the the small rural centres.

THE president of Queen's College, Galway, in h for the year ending last June, reports that the n students was 111, of whom fifty-three were from C and thirty-nine from Ulster. There were seventee students. The president claims that the results fully entitle the college to claim equal rank with Queen's Colleges in any university scheme which proposed by the Government, especially when con is taken of the utterly inadequate endowment of th and the pressing need of further funds for a lecturer, and the additional equipment of variou ments.

WELSH.

THE Cardiff School Management Committee h up a prize attendance scheme. In Welsh schools tion constantly arises of holidays taken and oft in connection with religious organisations. Sho absences be counted against the scholars or no Cardiff Committee has decided that "the absence o in council schools on the occasion of their Sund treats, Band of Hope outings, or the like, for in the year be not counted against them as under the prize scheme, provided that satisfactory be tendered to the head-teachers of the attendanc

at the treats, outings, &c." At the same com-eeting it was decided to make a general regula-ibiting canvassing on the part of applicants for ler the committee, an exception being made in applicants chosen for "short lists."

:ent meeting of the Llanelly Education Committee, nent was made between the committee and the of the local Church of England voluntary school chool should not be worked within the grants, and ıe chargeable to the rates. On a recommendation managers for the appointment of two assistant- it appeared that the salaries would bring the ınse to more than the grants provided. But the d received the money known as "special aid." :ion arises: Is special aid a grant? Of course, to argument that the allocation of such "special ıt all events, not an encroachment on the rates.

liff an appeal for financial aid has been made to dary Schools Committee by the Heathfield House Pupil Teachers' Centre, which has been estab-ee years. The application has been rejected by to two. It was stated that the committee had ve forty-nine pupil teachers notice, and that it absorb into its schools all its own pupil teachers, thus there was no need to train so many unless ! be used.

R county intermediate school has been opened ain Ash. Lord Aberdare has given the site, and gation Company has given a valuable piece of rovide a road to the school. At present only premises are provided, with accommodation for .

ıgollen Intermediate School there are now 120 n the lists, the full number which the schools : to accommodate. The governors have passed on to supply pupils upon entering the schools s and stationery fees.

is still the bitter cry that Wales is being l for her success in secondary education." A has been started from Cardiff to induce all the nd county authorities in Wales to join in appoint-ong deputation to wait upon Mr. McKenna in the matter. At a meeting of the Carmarthen-:ation Committee it was stated that the county then would suffer a loss of between £1,500 and

:CENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

, Le Coup d'État. Edited by J. W. Longsdon. pp. (Arnold.) 1s. 6d.—Mr. Longsdon has care-d the greater part of the first three books of ı le Petit"—a work in which Victor Hugo splendid powers of over-emphasis in vltupera- anecdote quoted on p. xix, according to which after glancing through it, said: "Voyez, voici 'Napoléon le Petit' par Victor Hugo le is delightful. Mr. Longsdon has written an ntroduction, and notes which are correct; they side of brevity, unfortunately an unusual error. lection of subjects for free composition has been l a few English passages for retranslation and sition. The text is carefully printed; we have noticed *égalé* for *égale* (p. 66, l. 5). In the note on p. 24, l. 17, "folded" would perhaps be better than twisted. A map of Paris would render more interesting the accoun: of *le crime du deux décembre.*

Dumas, Aventure de D'Artagnan en Angleterre. Edited by K. Auchmuty. 48 pp. (Blackie.) 4d.—This episode from "Vingt Ans Après" deserved inclusion in the "Little French Classics" as a good specimen of Dumas's melo-dramatic writing. The notes are good, and a *question-naire* has been added, in which are included questions on grammar and etymology. The questions are divided into sets according to the pages of the text; it would have been better to divide the text into suitable sections.

The Sounds of the French Language. By Paul Passy. Translated by D. L. Savory and D. Jones. viii + 134 pp. (Oxford: Clarendon Press.) 2s. 6d.—M. Passy's "Sons du Français" is an admirable and well-known book. It is naturally written, in the first place, for French readers. The idea of translating it and adapting it for English readers was a good one, and as far as the translation is concerned the work has been very well performed. We cannot help feeling, however, that something more might have been done to help the English beginner in phonetics, and, if necessary, space for this might have been gained by the omission of references to the sounds of very remote languages. The book has been carefully printed, and slips are very rare. The decision not to use the single dot to indicate half-long vowels has in some cases led to awk-ward results (*e.g.*, on pp. 45, 62). The anecdote at the end of § 73 is repeated in the footnote on p. 34. To say that in English "nasalization hardly exists" (p. 67) is in-correct; the remark is not found in the original text. On p. 73 *Theater* has been added to the words with glottal stop; but this pronunciation is not good. The rendering of *pour* by "reinforced from" (§ 233, end) is unhappy. Though familiar with the book, we had not previously noticed M. Passy's little joke in the selection of *a* and *s* in § 38 and *a* and *n* in § 163.

Les Classiques Français. Issued under the general editorship of H. W. Allen. (Dent.) Cloth, 1s. 6d. net; leather, 2s. 6d. net.—Among recent additions to this delightful series we note Beaumarchais's "Le Barbier de Séville" and "Le Mariage de Figaro," with a preface by Jules Claretie; La Bruyère's "Caractères," with a preface by Augustin Filon; Montesquieu's "Lettres Persanes," with a preface by É. Faguet; and Voltaire, "Contes Choisis," with a preface by Gustave Lanson. These are editions which it is a pleasure to handle; we know of no French ones as reasonable in price and as dainty in form.

Parlez-vous Français? By K. Fitzgerald. 78 pp. (Longmans.) 1s.—The sub-title is "Le Français enseigné d'après la Méthode Directe." There is, however, no in-troduction to show the teacher how the book is to be used. It may be regarded as a "direct-method" book, inasmuch as the text is all in French; but there is also a vocabulary—and a very incomplete one, too. The read-ing matter consists of conversations, poems, and songs which occupy more than half the book. The illustrations are not of high quality; and some, notably that on p. 56, are very poor.

Cassell's Penny French Classics. Edited by de V. Payen-Payne.—This is really wonderful value for money—twelve classics for a shilling, and good introductions into the bargain! Such enterprise deserves success. The works that have appeared so far are: Racine's

" Plaideurs," Musset's " On ne badine pas avec l'amour," Mme de Sévigné's " Lettres et Pensées," Boileau's " Art Poétique," stories by Mme de Ségur, Books I. and II. of La Fontaine's Fables, Corneille's " Cid," Balzac's " Une passion dans le désert," Perrault's fairy-tales, two *contes* by Voltaire, two of Bossuet's " Oraisons funèbres," and Molière's " Précieuses Ridicules "—truly a banquet with dishes for all tastes. These booklets are also issued in limp cloth at 3*d*. each.

English.

Sohrab and Rustum with other Poems of Matthew Arnold. By W. P. Trent and W. T. Brewster. xxv+107 pp. (Ginn.) 1*s*. 3*d*.—This is a carefully done volume with a really good account of Arnold prefixed by way of introduction. The notes are few but sufficient, and are placed at the foot of the pages. There are some illustrations, and the selection of the poems is capital. The book is in all ways adapted to introduce young students to a further study of Arnold.

Burke on the Proposals for Peace. Letter I. By F. J. C. Hearnshaw. xxxvi+95 pp. (Clive.) 1*s*. 6*d*.—This edition is adapted to students for the intermediate arts course at London University. A great amount of information is put into very small compass, and so conveyed as to enable any bright candidate easily to acquire a good working knowledge of his subject.

A Commentary on Browning's Sordello. By K. N. London. 212 pp. (Sonnenschein.) 1*s*. 6*d*. net.—This is very good. It is but a small volume, but it deals satisfactorily with the subtleties and obscurities of Browning's most difficult work. Students will find it valuable; but it also deserves a place on the library shelves of the ordinary lover of literature. Nothing better that we know of is in the market.

Essays and Letters of Charles Lamb. By A. Guthkelch. viii+152 pp. (Bell.) 1*s*. 4*d*.—This book is conceived upon an original plan. The ten essays and sixteen letters comprised in it are so arranged and dated as to cover Lamb's life, and present his works in an autobiographical form. The notes are short but well done. A handy and interesting edition.

The Shorter Poems of Longfellow. By G. Clifford Dent. 48 pp. (Dent.) 3*d*. net.—A small selection of Longfellow's verse, characteristic of that poet at his best for the most part, and a serviceable addition to a noteworthy series.

Midsummer Night's Dream. By I. W. Iliffe. xxvii+113 pp. 1*s*. *King Lear.* By A. V. Houghton. xxxii+140 pp. 1*s*. (Longmans.)—Two small editions, very well done, practicable, comprehensive, well illustrated, and in all respects useful.

Supplement to Coriolanus. By Stanley Wood. 24 pp. (Gill.) 6*d*.—A capital addition to the accurate and handy Dinglewood Shakespeare Manuals.

History.

A History of Scotland for Schools. Part I. By P. Hume Brown. xiv+304 pp. (Oliver and Boyd.) 1*s*. 6*d*.—Dr. Hume Brown's name is a sufficient guarantee for accurate history, and we know by perusal that this book is quite readable and suitable for school children. Beginning with the Stone Age, the story of the country is continued to the death of James V., and is interspersed with all the interesting episodes of that period, while the mor aspects of history are by no means forgotten. W know a better introduction to the history of Sco school children on either side of the Tweed.

An Illustrated History of England. By W. S. I Period II. 403–763 pp. (Rivingtons.) 2*s*.—We noticed the first part of this book. The second pa us as more correct than the other for home af the author is not familiar with the European l the time. The consequence is a confusion at the accounts of our foreign policy; otherwise th good. It brings the history down to the present is provided, as its title announces, with illu among which are reproductions in small of the bearings of our sovereigns. There is also an in

Stories from Roman History. By E. M. Buxton. viii+117 pp. (Methuen.) 1*s*. 6*d*.—T divides his stories into two parts, the " legends " true stories " of Rome. The first of the lat of the Caudine Forks. But in both parts the told as stories, and are well adapted to our your There are no pictures, but there are a short l events and an index. It is a pity that the la sketching the history from 14 to 476 A.D., shou the " fall of the Roman Empire." Justinian been astonished, as well as Otho III. and Henry

A Junior Greek History. By W. H. Spragg (Methuen.) 2*s*. 6*d*.—A sketch of Greek histo usual lines, from the earliest period to the fall illustrated with four maps and four photograp are an index and an appendix of short notices o men in Greek literature, art, and philosophy.

A First History of Greece. By E. E. Firt 78 pp. (Methuen.) 1*s*. 6*d*.—We are afraid Firth will not succeed in her " attempt to interest of *young* people in the heroes of Gree our opinion " the language has " not " beer simple as possible," and the questions she puzzle older folk. The poetry, too, with whic trates most of her chapters, takes much th her book would supply useful hints and illu teachers.

Notes of Lessons on English History. Boo 1906. 208 pp. (Pitman.) 3*s*. 6*d*.—We h noticed (July, 1907) the first " book," and remarks apply to the present section.

Geography.

The Americas. By J. B. Reynolds. 128 p diagrams, and maps. (Black.) 2*s*.—This i illustrated series of Regional Geographies b author. Pictures, statistics (not later than 1905 and maps are all instructive, and the letterpres ing. Throughout, the author rightly insists on ance of cause and consequence; it is not suffi to inquire where Chicago and St. Louis are, b are where they are; the names of the Alleg are as nothing compared with the influence c range on the political and economic history States east of the Mississippi; the unequal rainfall in South America is an interesting f knowledge of it necessary, but not nearly so the working out of the important results fol this inequality. These examples show the

a the book is written. It is therefore to be commended alike to teachers and taught. The style is not too "; the pictures are very good; print and paper are t. That the maps are without scales, and some without lines of latitude and longitude, and that no index, are defects which should be remedied ture edition. The questions set are more by way mination puzzles than the practical exercises which uld prefer, but as one of the objects of the book is ghten candidates on what lies before them in geoical examinations of the standard of London matricu- this may be an acceptable feature. We should ked, by the way, to see some questions set on the capital pictures—another hint for another edition.

ew Geography of the World. Anon. 208 pp.; ns and maps. (Chambers.) 1*s.*—This book has, k, little but its cheapness to recommend it. The is promising: "great attention to Commercial hy," "a concluding section on Physical Geo- of a more advanced character," "great care to accuracy of detail," "most recent statistics," are ctive baits. But granting (purely for the sake of nt) that the commercial geography is "*com-*," that the physical geography is "advanced," e details are accurate and the statistics recent, we ll at a loss to understand why in these latter days roved geography teaching so antiquated a style of hould appear. There are pages after pages of lists daries, capes, peninsulas *et hoc genus omne*— out to look like descriptions; there are hardly any to trace the relation between cause and effect; jority of the maps are poor and scaleless. It was pon books of this sort that our rulers at the Office were fed in their infancy; the recollection ould be cause sufficient for their recent action in geography from the list of subjects for the Entrance Examination.

' Standard Time Dial. Designed by Prof. R. A. . (Philip.) 3*s.* 6*d.*—A simple, neat, and easily e instrument by means of which time questions necessity for "time standards" can be explained. olid board, 19 in. × 16½ in., is inserted a movable in. in diameter, on one side of which is represented rthern hemisphere and on the other the southern. reat land masses are shown and their names given d type. The meridians are marked off in 15's. the board are arranged hour figures to correspond. oving the disc, each place 15° E. or W. of Greenwich into position an hour fast or slow as the case may With the disc at rest and the prime meridian placed noon, time is indicated all over the world with nce to Greenwich. The "standard times"—*e.g.*, America, Japan, British South Africa—are marked separate labels attached to their central meridians. l should make the understanding of these various easily intelligible to junior classes.

Mathematics.

thmetic for Schools. By J. B. Lock. New edition, d and enlarged, with the assistance of V. M. Turnviii + 480 pp. (Macmillan.) 4*s.* 6*d.*—Commendation iticism of a book which has had so large a circulation his one is out of place. The chief change in this n is the omission of certain articles dealing with r of a technical character, such as duodecimals, s of temperature, chemical compounds, equations of ents, foreign coinage and exchange; Horner's method of obtaining cube roots is also omitted. The exercises have been carefully revised.

The Leader Arithmetic. By George Merchant. Six parts. Parts i.–iv., 64 pp.; parts v., vi., 56 pp. (Simpkin.) Paper covers, 3*d.* each.—The title-page of each part bears the following description of the contents: "A series of very carefully graduated exercises in arithmetic, with rules, explanations, and worked examples in the higher parts, suitable for all elementary schools, and the lower forms or classes of other schools, but specially intended for children who leave school when about fourteen or fifteen years of age." These words may be taken as stating the aim the author has in view. The least satisfactory portions of the work seem to us to be the "explanations" in the higher parts; these will often require considerable supplement from the teacher. The examples themselves, however, seem to be carefully graduated, especially in the earlier parts, though the number of examples of a formal character is perhaps excessive. Recurring decimals are treated in part iv., but very little attention is given to approximate methods; surely approximations are of much greater practical importance than the cube root or permutations and progressions discussed in part vi.

The Methodical Arithmetic. By W. J. Greenstreet. Parts i. and iii., each 24 pp. (Dent.) Paper covers, 1½*d.* each.—The books are designed for pupils in elementary schools, in accordance with the code of regulations issued by the Board of Education, part i. for first standard and part iii. for third standard pupils. The questions are nearly all of the concrete type; it is difficult to frame hundreds of such questions without falling into a depressing monotony of phraseology, but the questions proposed in these two parts are wonderfully free from trivialities, and there is very great variety of expression, while almost all subjects that would interest children have been drawn upon for examples.

Bell's New Practical Arithmetic for Elementary Schools. By W. J. Stainer. Seven books. (Bell.) Pupil's copy, first six books, paper 3*d.* each, cloth 4*d.* each; seventh book, paper 4*d.*, cloth 6*d.* Teacher's copy, seven books, each, paper, 8*d.* net.—The pupil's copy contains exercises, each book comprising one year's work; the teacher's copy contains, in addition to the exercises, answers to the examples and suggestions on methods of teaching. The work differs in many respects from most, if not all, of the books written for elementary schools. From the general preface we learn that the chief consideration kept in view in preparing it has been that the object of the teaching is to enable the children *to think clearly and systematically about number*, rather than to perform, even with accuracy, operations which are but dimly understood. Only after the simple rules have been arrived at by the application of "common sense" are exercises proposed for the purpose of cultivating rapidity and mechanical accuracy. Exercises involving weighing and measuring, designed to correlate the subject with drawing and elementary science, are introduced at an early stage. An attempt is made to lead the pupils to appreciate the processes and methods that are often considered to be peculiarly suitable to algebra by inserting "symbolic exercises" at all stages of the course, though the literal notation of algebra does not appear until the third year, and then only in its most elementary form. The design of the book seems to us to be excellent, and the manner in which it has been carried out is, so far as a comparatively brief examination shows, very satisfactory.

[illegible] the [illegible] [illegible] [illegible]

amsay's words offer an occasion for directing
o this, which perhaps, in view of the great
the subject, you will allow me thus shortly to
"
E. R. GARNSEY

N.S.W.

Teachers and Continental Holiday Courses.

he scholarships scheme of the Sheffield Educa-
ittee, grants of £5 are made to students of
Teacher Centre who have passed certain qualify-
ations to enable them to spend their summer
ttending a holiday course on the Continent.
ment was first tried in 1906, when a party of
rls availed themselves of this privilege and
nth at Dijon. The course there was good, and
was done by Prof. Lambert, the secretary, to
isit of the students pleasant and helpful.
ır one boy went to Marburg, five boys to
and eleven girls to Nancy. The experiment
so successful that a few details concerning this
as a type of all may prove useful and interest-
party, which left Sheffield on July 25th, con-
ight matriculated students who received the
the Education Committee, three others whose
d their whole expenses, and myself, acting as
As it was necessary that we should cut down
here possible, we travelled third class all the
d class on the boat), and we found that this
travelling on the Continent was not so terrible
it is often supposed to be.
via St. Pancras, Newhaven, and Dieppe, and
Paris on the morning of July 26th. A 'bus
at the St. Lazare Station, and after leaving
e at the East Station we were taken to a
ır the Luxembourg Gardens. We spent the
ır first day abroad and the early part of the
ing the sights of Paris, and as the weather
o hot we were able to visit the Panthéon,
Etienne, Notre Dame, Palais de Justice and
apelle, Jardins des Tuileries, Hôtel des
Champs Élysées, Arc de Triomphe de l'Étoile,
without excessive fatigue. We left Paris in
, and arrived at Nancy before ten.
ents had been made for the reception of the
aison de famille, and the accommodation there
nt. It was well appointed in the style of a
hotel. It had been built primarily to receive
dents. Among the residents during the stay
rty were Germans, Russians, Roumanians,
do-Chinese, and Frenchmen. Except during
there were no other English people in the
this cosmopolitan party the only common
as French, and the social intercourse in the
n excellent supplement to the university course,
ample opportunities for, and indeed necessi-
ice in French conversation. The food and
the *maison de famille* were good, the study-
ere comfortable, a piano in the *salon* gave
s for music, &c., and altogether life there was
it. The ordinary charge *en pension* was from
er month.
early interview with M. Antoine, the director
n de famille, and a professor at the university
was agreed that the most important part of
or our students would be conversation and
n, and M. Antoine kindly offered to give them
special lessons at the *maison de famille* in
ie of the lectures at the University, which, it
was thought, would be less valuable. This he did, and they proved very profitable. He took the greatest pains to teach them the pure French sounds, and gave them excellent exercises to afford practice in the production of these sounds.

The university course was very well arranged. Lessons usually began at eight o'clock in the morning, and thus the hottest parts of the day were left free. There was no official division of the course into elementary and advanced sections, students being at liberty to attend as many of the lessons as they chose. The secretary and other professors were always willing to advise individuals as to the courses best suited to their stage of efficiency. In deciding which classes our students should attend, more attention was paid to the method of teaching and the rapidity or otherwise of the speaker than to the subject-matter, as it was felt that the matter could very frequently be learnt equally well from a text-book at home, and that the chief object of our students was to gain as great facility as possible in understanding and speaking the language, and to improve their pronunciation.

In M. Antoine's lessons at the University students were called upon to read aloud from some prose text, and were then asked questions upon the meanings of words, their grammatical relations to others, their derivation, &c. At other times conversations were introduced upon topics indicated beforehand.

M. Moutier, another professor, required the students to prepare a story beforehand, and several of them, chosen by lot, had to mount the platform and tell it in French to the rest of the class. This proved too trying an ordeal for the majority of the English students, but the Germans showed the results of their better language training in a lack of hesitation and self-consciousness. Other lectures on the history, geography, and institutions of France, literature and phonetics, were more valuable to the more advanced French scholars.

Nancy is a very fine town, and is situated in the midst of beautiful country. About two miles away is the extensive forest of Haye, which provides beautiful promenades and excursions. The town itself is of considerable historic interest. M. Antoine upon two or three occasions accompanied the Sheffield students to point out the places of interest in the town. This afforded further opportunity for practice in French conversation, and was much appreciated. In addition to this, two excursions were arranged weekly to places in the town and neighbourhood for the whole of the students attending the summer course at the University.

When I rejoined the party a few days before the end of the course I had some opportunity of judging the progress made by the students. In one or two cases I was delighted with the fluency of speech exhibited, and, as far as I could see, all had found the course profitable.

We left Nancy on August 22nd, and, breaking our journey at Metz and Luxembourg, reached Brussels in the evening. The next day was spent in viewing Brussels, and at night we crossed from Ostend to Dover. Saturday was spent in London, and we reached Sheffield in the evening.

The experiment, then, has proved very successful; for whilst it has been valuable to the students in their study of the French language, it has also widened their mental horizon considerably, and has furnished a most enjoyable holiday. The total cost for the month, including travelling expenses (from London), board and lodging, university

fees, and personal expenses, need not exceed £13 5s., and if the party returned through Paris instead of going through Brussels, this could be reduced to £12 or even less.

L. C. DUDLEY.

Sheffield.

The Supply of Secondary-school Teachers in the West Riding.

I NOTICE in the paragraphs on p. 390 of your October issue where you deal with the third annual report of the West Riding Education Committee, you comment on the statement in the report that "the committee has recently utilised a valuable source of supply by extending, in cases of special merit, certain county major scholarships on the condition that the holders shall serve for a two years' period in some approved secondary school in the West Riding."

Your comment is that it remains to be seen to what extent the schools will suffer from a succession of untrained teachers. On p. 21 of the report, from which the extract is taken, I see that I have omitted to state that these major scholarships are renewed for an extra year for the special purpose of training, and during that year the holders either take a special course of secondary training at an English university or are sent abroad to a foreign university, and in all cases obtain a diploma or certificate of efficiency as teachers.

Wakefield. A. V. HOUGHTON.

[WE are glad to learn that, though there is no mention of the important fact in the report, due provision is made by the West Riding Education Committee for the training of the major scholars who become secondary-school teachers.—EDITORS.]

The Refractive Index of a Liquid.

A PLANE parallel glass plate is pressed lightly by suitable springs against the reflecting surface of a concave mirror. The combination is mounted on an optical bench, and the radius of curvature, R, of the concave surface is determined by one or more of the usual methods. The space between the glass plate and the reflecting surface is filled with the liquid, and the object on the bench is moved to a position where image and object are equidistant, D, from the mirror. Then it can be readily proved that the refractive index of the liquid $= \frac{R}{D}$.

I have found that, by using good optical materials and employing the knife-edge method of locating the foci, the refractive index of a liquid for monochromatic light can with ordinary care be determined correct to the third decimal place.

The radius of curvature of the mirror is practically constant, and when once this has been determined the measurement of the refractive index depends on the measurement of a length. The axial displacement of the foci by the plane glass cover plate gives rise to a small correction, which need not be applied in an elementary experiment.

The advantages to be claimed for this method are:

(1) The optical arrangement is a simple one.

(2) The experiment can be performed with ease.

(3) The calculation presents no difficulty.

(4) Only a small quantity of liquid is required.

F. W. JORDAN.

Canterbury.

Enunciations of Euclid, I., 13 and 14.

I HAVE read with much interest many of the publications treating of geometry on modern observe that one of the guiding principles in t ment of the subject is to make the enunciations positions as clear and concise as possible. But see the application of this principle in enunciatin I., 13 and 14, which, by common consent, are ta May I, therefore, invite opinions from teachers form of enunciation for the theorems under ref a form that seems to me to be the best for the reasons: (i) it is at once concise and clear; (forms of enunciation it shows most clearly that t theorem is the converse of the first; (iii) these very first set of converse theorems to be taken desirable that the wording of the enunciations once make the converseness of the theorems evid out the help of the teacher's paraphrase.

In actual teaching I found difficulty in elici the second theorem is the converse of the first altering the form of the enunciations. Explainii class, therefore, the definition of adjacent angles by Mr. Charles Smith—*vide* "Euclid's Ele Geometry," by Smith and Bryant (Macmilla enunciated the theorems as follows:

1. If the outer arms of two adjacent angles straight line, the angles are supplementary.

2. If two adjacent angles are supplementary, th arms are in a straight line.

M. D. MAS

Central High School, Shiyali, S. India.

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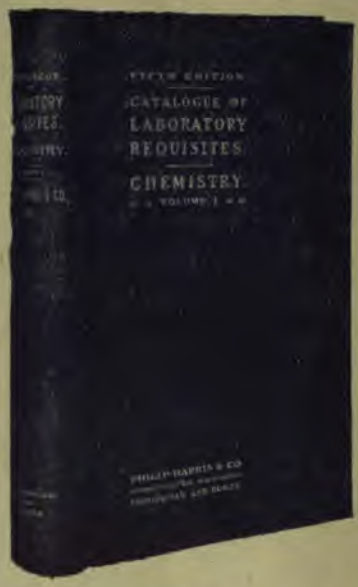

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TION is increasingly "on the make." subject has attained gigantic propor-, and our system, with its organised secondary, tertiary, and university d with its enormous expenditure of both private money and public and private time, is engrossing more and more in- attention.

d doubtless stagger belief if it were ıt, after all, this immense educational rests on an unsound foundation, that ional yet constantly reformed system, orious or ingenious methods, its densely rricula, and its principles developed ıch care and thought, is radically errone- structive of its essential object.

ave no doubt that this dire possibility of proof, and that the psychology of the will carry it out. It would not be the ly case of an erroneous system lasting The following remarks are intended to e possibility that our educational system ntally unscientific. The suggestion may ated thus—that (with such exceptions stance, some of Froebel's ideas) our s no relation to psychological and bio- t.

ne asks what is the primary end or education, the answer is, perhaps, velopment, "culture," "formation of " preparation for the business of life," . Putting aside the question as to me of these ends are illusory or wrong ves, one may say at once that our system rry out any one of them. More than ually produces a perversion of each.

first the biological question, we ought that a system of education should be in t sense biological; that is to say, it based on such principles as will carry ward development of the race. Our owever, is confessedly retrogressive, if gical; it has in view the past of the eneration (the parents, the teachers, and tors) instead of the future of the race.

In other words, we are trained in the same way as, and always a little better than, our fathers, in the hope that we may be ourselves a little better. In carrying out this aim, the subconscious notion is, to make us more and more mature, to make us more of men, and more rapidly. I do not mean to imply that any precocity is consciously aimed at, or that physical or moral maturity is, even subconsciously, forced. What I mean is, that we set ourselves to produce as mature a mind as possible.

But our aim ought to be the exact opposite of this: we ought to keep the mind and character in the pre-adult stage as long as we can. By pre-adult I mean the period ending with the later period of adolescence, say about seventeen in boys. As for the body, there is such prevailing ignorance of its needs and possibilities, that at present we can only pray, as it were, for light. Education should have two central aims: (1) to keep the whole organism youthful for as long as possible, and (2) to lay a foundation for an increase of youthfulness in future generations. Precisely because the youthful type is the higher. What are the reasons for this apparent paradox? Biologists tell us that after puberty the growth of the human species is in the direction of degeneration and senility; man reverts to the ape. They tell us that the higher man is in the line of evolution, the more he retains of the child-type. "Among the anthropoids," says Ellis, "the infant ape is very much nearer to man than the adult ape. This means that the infant ape is higher in the line of evolution than the adult. Man, in carrying on the line of evolution, started not from some adult male simian, but from the infant ape. The human infant bears precisely the same relation to his species as the simian infant bears to his, and we are bound to conclude that his relation to the future evolution of the race is similar. By some strange confusion of thought we always assume that the adult form is more highly developed than the infantile form." The same is true of psychical development. The child of many savage races is not less intelligent than the European child, but while, *e.g.*, the African, as he grows up, becomes stupid and obtuse, the European retains something of his childlike litheness. "The progress of our race has been a progress in youthfulness." We know that in

geniuses there is a more or less striking approximation to the child-type, and of the ancient Greeks, who, in the opinion of some, represent the highest point yet reached in human evolution, it was said, "You Greeks are always children."

"Can it be possible," we ask, "that the mind of the child is really the superior?" There is a very fair presumption that such is the case, that in quality and type the pre-adult mind is superior to the adult, just as, in quality and type, the child's body is more highly developed than the adult.

"Mental exaltation," says Clouston, "is perfectly natural in childhood. It is, in fact, the physiological state of the brain at that period. Depression, on the other hand, belongs to maturity, and racially, melancholia is an insanity of the adult and civilised." The memory of a child before it has received any education of the traditional sort is infallible. The child's power of "intuition," and its capacity of going straight to the point are remarkable, though as yet little known. As for imagination, making due allowance for the lack of experience, we must admit that for vividness and power, concrete form and versatility, the mind of the child is far superior to that of the creative artist. The child may be said, more or less, to live in its imagination. No less characteristic is the imperative tendency for an idea to express itself in action. To compare the characteristics of the adult mind is very instructive; one result arrived at is typical—the gradual obsession of the adult mind by abstractions, which never impose, except through education, upon the pre-adult. Even if there were no direct evidence, it would be legitimate to infer by analogy that, if "the savage is at his best intellectually, emotionally, and morally at the dawn of puberty, while when puberty is drawing to a close a degenerative process seems to set in," the same may be true of Europeans.

There is a further point which serves to connect the biological and psychological issues. The discovery of the biological importance of play marked an epoch in the study of man. We are so familiarised with the existence of play as "a childish thing" that we never stop to consider what a remarkable phenomenon it is. Reid remarks: "In reality the play of a child is the most beautiful, the most wonderful, the most suggestive phenomenon in nature"; and he puts the biological law thus: "The higher the animal, the more capable of making physical and mental acquirements, the more sportive it is."

Now if there is one thing which broadly differentiates the child from the adult, it is the passion for play. It is a curious fact, but no coincidence, that the words σχολή and *ludus* were used by Greeks and Romans for the training of school. The truth concealed by this fact we have forgotten (if we ever knew it) in the stress of competitive examinations and the accumulation of "learning," yet it is of profound importance. It is this: the brain is not a muscle, and there is *every reason* to suppose that artificial exercise of the brain, if it leads to fatigue, arrests its d ment. Yet hard study is still the ideal vir the schoolboy's aspirations. *Improbus lab* favourite motto in school books; *Labor orare* is carved on school portals. This sug is very clearly proved in the case of m Refrain from drilling a child's memory, an things being equal, the memory never fail in school we make children learn and rep grope among symbols, and memorise eve up to straining point. Statistics of " fatigue " are beginning to be made, but t as yet considerably under the real figur nervous organism of children is most delic all the more easy to tire and spoil. I l doubt that a very large percentage of mi practically ruined by this over-pressure. deterioration is an increasing result of th fatigue that leads to juvenile craving fo ment. In Prussia there is a very fair average of suicides among school childre considerations lead us to make the pa assertion that there should be no work in

In the next place is the fact that "the ance of the brain has been greatly exag . . . Its importance is strictly related to th very intimate connection with the body g We have been apt to regard it as the ruler of the body, whereas, so far as it is a all, it is a strictly democratic ruler. Th elements are but sensori-motor delegates together for the sake of executive conve It is just here that we make the mistak cessively abstract methods of teaching, an sively rigorous drill and discipline. The organism is not merely the brain, but th neuro-muscular system, the delicacy of w children we adults are too apt to forge probably to fatigue that the lack of indi and the feebleness of will, so conspicuou schools as adolescence is reached, are chi

But we must add that for purely mental ment the true method is not mental dril tract reasoning, but action, action in the sense of the word, and the form it shoul play. How is it that the men who do be and particularly the men who are most with reality, are precisely those who did school? Why do business men compl the young men who join them cannot thi is, cannot apply their abstract know reality? The fact is that the only mental ment a boy gets now is in the playing fi the social life of school! This is not en course, and he has to obtain his real e when he goes out into the world. He doubly handicapped, not to mention the p of arrested physical and mental develop sulting from his school life.

It may be said that our traditional cur on its literary side, produces "culture." deny. Culture is the result of refinemer conditions of life. It is a rare product, in certain temperaments of the artistic or attempt to teach it by English literatu

older method of the classics. In the ve have a curious example of deliber- of the abstract. Christian ideas of ıess and aristocratic ideas of aloofness ısses have helped to institute and per- "gentlemanly education," which has to the reality amid which the gentle- ive.

is a psychological blunder to aim at of a subject, or of a stage of a subject. am" in disguise. Specialising in all of human knowledge is necessary for ıt it should be done by adults only.

ɔn to further details, we note that the as prevail on the subject of physical culture. There is a tendency which cing, towards a muscular training ɔm the training of the senses. This ket or football is so superior to, for ymnastics. We teach nothing, and e know nothing, of health; we do not ɔur children how to be clean, or how drink and breathe. It has been re- t the claim of "formation of char- ı unconscious apology for the educa- ɜsness of our higher curricula. That be, but the way in which the char- ublic-school boy is "moulded" by his ı spectacle for the gods. Tartuffism patriotic sentiment do not tend to gh type of character. The moral prin- ıculcate have no relation to reality, ɔuritanical hypocrisy. And, generally ne feels inclined to agree with the mark that "the vilest abortionist is ɲpts to mould a child's character."

ess subjects, we have suggested that ıelps mental development unless it is ıto terms of reality, instead of being nto books—but there are subjects of uelessness. History in the ordinary ɜ term is one. "History is written y get rid of the past": that is the he greatest living authority on his- ce. History of a biological or socio- , however, is of use towards under- e world. All languages except the ıre to be rejected. As some one has is little use in "learning to say the er in many different languages, any ı the Lord only can understand." "It ılogical impossibility," says Stanley ass through the apprenticeship stage oreign languages at the age when the s setting, without crippling it." And schoolboy's ignorance of English, as ɜnt of speech and thought, is due ɜ attempt to learn other languages at ne, and partly to the inadequate way nglish is taught. The English lan- ɔperly taught, would have magnificent ɔwer of thought and expression, but a seudo-scientific grammar or in models reat writers is in the one case dele- in the other narcotic. "No man fully capable of his own language ever masters another." There is no argument of any value for the retention of languages other than English. If it is needed for professional purposes, a boy can learn a language in a few months abroad. This is the only way he ever learns it now, either after leaving school—the four or five years spent there in learning French or German being so much waste—or spending part of his hard-earned holidays in a foreign *pension* by an arrangement between the headmaster and the lodging-house keeper.

A great part of mathematics is useless, and only taught by way of rounding off the subject. There is too much writing. Caligraphy should be taught as drawing is taught, and practised with a view not to shorthand facility but to beauty and use. Subjects of various sorts should be thought out and expressed aloud. Most boys leave school without any power of dealing with a subject, or even "writing it up." Lastly, we need the addition to our curriculum of instruction in the realities of life—we should produce men who are men of their hands, and possessing the insight which can pierce through the veils of cant and other protective armour used in the battle of existence. For instance, no boy is ever actually taught the use and importance of money. By this I do not mean the need of economy, or the prohibition of theft, or "the wise use" of wealth, or, again, the political economy of the books.

I have not stated a case, necessarily, so much as thrown out suggestions; but it seems to me that the mind of the adult, if not bullied, slave-driven, and crammed in childhood, would be a saner, brighter, and more living thing than it is now. I think there can be no doubt of this. There is no lack of facts which point unmistakably to the necessity of a radical change in the principles of education, and when once the necessity is pointed out other evidence will fall into line, and further evidence may soon be forthcoming.

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BY the unanimous judgment of the Court of Appeal in the Richmond Grammar School case (Wright *v.* Zetland), the "exceptional" position, in regard to insecurity of tenure, of assistant-masters in public schools under the Public Schools Act, 1868, that is to say, of the great majority of assistant-masters in secondary schools, has been made clear to all.

In giving judgment a few days ago in a case affecting an assistant schoolmistress (Mansell *v.* Griffin), Mr. Justice Phillimore alluded to the Richmond case. He said: "The position of a certificated mistress in a public elementary school was, as regarded the headmaster or headmistress of that school, a more independent position than the position of a master in a public school under the Public Schools Act, 1868, or in a public grammar school under the Endowed Schools Commissioners. Their position had been recently shown

by a case before Mr. Justice Lawrance, whose view was supported by the Court of Appeal. Under the Public Schools Act, 1868, the *exceptional* position of assistant-masters had been determined. *They were merely the assistants of the headmaster, appointed by him, and dismissed by him at pleasure."*

After many years of doubt and discussion, the great majority of the members of the most constructive profession find that their tenure of office is *exceptionally* insecure. They are dismissible at pleasure, that is, at a moment's notice, without cause assigned, at the will of a single person, of whom they are the personal servants. No custom of a term's notice in the profession has any legal force. They may be thoroughly competent and conscientious; they may have given the best of their years to the service of their school; all that need not afford the slightest protection against the whim of an elderly headmaster or the theories of a new broom. Assistant-masters in secondary schools are the only public servants who have no guarantee against arbitrary dismissal at the hands of an individual.

Such is the unenviable position of assistant-masters in secondary schools. The framers of the 1868 Act wished, no doubt, to abolish the freehold system of tenure in the grammar schools, but they can scarcely have intended to replace it by a system of flagrant injustice.

Of course, if a headmaster can dismiss an assistant at a moment's notice, it follows equally that an assistant can leave at a moment's notice; and if assistants are the personal servants of the headmaster, the latter incurs the liability of all employers for salaries, insurance against accident, reasonable accommodation, and fair treatment. For the sake of the schools it becomes necessary to find a remedy for this impossible state of things.

Fortunately, headmasters, as a body, are fair and reasonable, and the great majority of them would welcome a solution of the problem which would attract the best class of men to their schools. At the present time there is a growing disinclination amongst honour men to enter the teaching profession, and, if things remain as they are, it is fairly safe to prophesy that the judgment of the Court of Appeal will greatly increase that disinclination.

A short time ago, the Incorporated Association of Headmasters and the Incorporated Association of Assistant-masters, acting in agreement, adopted the following resolutions:

(1) That the headmaster shall be empowered as agent of the governing body—

(*a*) At discretion to appoint assistant-masters. The headmaster shall notify to the governing body each such appointment, and assistant-masters shall on such appointment hold office from and under the governing body.

(*b*) At discretion to give notice of dismissal to assistant-masters. The headmaster shall, without delay, notify to the governing body any exercise of this power; and assistant-maste have the right of appeal to the Board of tion against such dismissal; this right exercised not later than one month fr receipt of notice.

NOTE.—The words "at discretion meant to record that the governing bo a position to inquire into the mode in wh power has been exercised.

(*c*) To suspend from attendance as masters for any adequate cause to be ju by him; but he shall notify forthwith governing body such suspension.

(2) That the decision of the Board of Ed in matters of appeal under 1 (*b*) shall cepted as final by all the parties concern that, in a case of successful appeal, the ant-master shall not suffer by loss of pending the decision of the Board of Edu

(3) That each assistant-master on appoi shall agree in writing to the terms of se set forth according to a form of agreer be approved by the governing body.

It will be seen that these resolutions giv fitting and necessary, the selection of the the headmaster, and that they make the as master the servant of the school. The as master is governed by the headmaster, but right of appeal to an impartial tribunal. solutions furnish the basis of a just and solution of the problem. A short amendi on the lines of this agreement would at o tablish reasonable security of tenure and to attract the right men to secondary s It should be made retrospective. vital to the future of secondary educatio the men who teach in secondary schools not be regarded as the mere assistants of dividual, but as the public servants of the s

THE NEW REGULATIONS FO SECONDARY SCHOOLS.

By H. BOMPAS SMITH, M.A.
Headmaster of King Edward VII. School, Ly

THE significance of the new regulati secondary schools is pointed out first two paragraphs of the pr memorandum as follows:

They lay down new rules as to the eligib secondary schools for public aid in respect of freed denominational restrictions or requirements, repre local control, and accessibility to all classes of the

They also carry out a further development of the laid down in the regulations of 1904 [that is, of grants on the course of instruction as a whole, of on the teaching of special subjects], in which it been found possible to allow more elasticity.

This greater elasticity has been unani welcomed by all who are concerned wi administration of our secondary schoo marking a fresh advance in the educational of the Board, which has now probably g far as is possible under existing conditions way of granting freedom of internal organi

scribed curriculum in which a definite of hours must be assigned to definite is now no more. The four years' course extended. The vexatious restrictions on tion and promotion have been abolished, e is no longer a temptation to put a boy to a higher form for the sake of earning grant. Originality is to be encouraged l grants for valuable educational experi- It is, therefore, all the more to be re- hat the benefits to be derived from this eral policy will in many cases be counter- by the effects of the new rules referred to st paragraph just quoted.

ır purpose the main conditions to which ed schools must now submit may be nto two classes. There are, in the first e conditions relative to the freedom of ls from denominational requirements and ns, and to their control by popularly local representatives. These conditions y that the school scheme must not require ber of the teaching staff or a majority of rning body to belong to any particular ation, and that the governing body must a majority of representative governors d by local representative authorities, such y or borough councils. In the second ere are the conditions intended to ensure ssibility of the schools to all classes of lation. With this object it is provided re a fee is charged, 25 per cent. of the admitted shall normally be children from ry schools, who upon passing a suitable test will be allowed to attend the second- ol without the payment of any fees.

rmer set of conditions appear to be open tions on two grounds. They attempt to a type of unity which is inappropriate to ting system of secondary education, and to further the evolution of the national tion of education which we all desire; condly, their enforcement involves such hanges as seriously to imperil the efficiency schools, and indeed of the whole system -aided secondary education.

utstanding feature of our system of y education has been its elasticity and of type. The public schools, endowed r schools, municipal schools, and private all meet different educational demands, ody traditions which are to some extent This variety of type has been accom- n the past by a great lack of co-ordination, s universally recognised that one of the oblems confronting both the Board of on and the local education authorities in ears has been the incorporation of the classes of schools in one coherent system. n an incorporation can be effected in either ways. One type of school organisation adopted as the standard to which all others pelled to conform; or else each type may loped upon its own characteristic lines to e element in a comprehensive system. In its regulations for the constitution of the governing bodies of all state-aided schools the Board has adopted the first of these methods as the one by which our national system is to be established, thus reversing to a large extent its policy in the past.

It is, of course, possible to exaggerate the significance of an alteration in the governing body of a school, but there can be no doubt that in the long run the character of a school is determined by the qualities of its governors. Each type of school has always been administered by a definite type of governing body, and hence the reduction of all governing bodies to one model will have a tendency to produce a certain degree of uniformity of outlook and atmosphere in the schools themselves.

It may be objected that the Board has no desire to render the municipal type of school universal, but simply selects it as the type most deserving of public aid. On this supposition the Board would be attempting to divide the secondary schools of the country into two classes. The one class numbered less than 200 before the issue of the regulations, and, though a most important part of the whole system, does not represent the widest type of culture, yet it is to monopolise all the grants for secondary education, to train all the pupil teachers, and to be the type to which all schools hereafter to be founded must belong if they are to receive public aid. The other class is to be composed of the schools representing other educational traditions, and rich enough to refuse the conditions offered. The present unfortunate division will thus be deepened, and tend more and more to be associated with distinctions of class and wealth. The exceptions which the Board has already found itself obliged to make are a proof that it finds itself unable to carry out such a programme.

But waiving the question of the ultimate tendency of the Board's new policy, it may be still contended that its method of procedure has been unnecessarily violent. The continuity of a school's life cannot be interrupted without serious loss, yet at six weeks' notice 628 schools out of about 800 [1] were called upon to alter the constitution of their governing body, involving in many cases an entire reversal of the policy and traditions with which for generations they had been identified. Anyone who has been permitted to know a little of what goes on behind the scenes is aware of the consternation with which the regulations have filled those who are responsible for the conduct of some of the most efficient of the grammar schools. It is also to be feared that a sense of uncertainty has been evoked most detrimental to the mutual confidence which had begun to mark the relations between the Board and the secondary schools.

It is to be regretted that so great an alteration was not preceded by a number of preparatory

[1] These figures are taken from the last report of the Board of Education issued in December, 1906, p. 63. But in the Summary of Figures issued in May, 1907, the state-aided schools are only 600, and 293 schools, to which 23 "may properly be added," are said to be under full public control, instead of about 178, as stated in the report.

changes extending over a series of years, all the more because some local education authorities are not yet ready to assume their new responsibilities. In some instances education committees have shown themselves admirably fitted for their work and well able to control any secondary schools, but this has not always been the case. Committees have often been overburdened with their other duties, and many of their members are not at present qualified for dealing with secondary education. A few years of gradual evolution would have rendered the extension of their powers far more likely to produce satisfactory results.

"One of the points," says the Board's last report, "which demand the most careful and thoughtful treatment is how to provide state-aided secondary education in the degree to which, and at the points at which, it is really needed, and how to ensure free access to it for children of every class according as the individual is intellectually capable of receiving profit from it." The second set of conditions above distinguished must be regarded as the Board's attempt to solve the latter of the two problems here defined.

In May last, of the 104,938 children attending state-aided secondary schools, just over 54 per cent. had previously attended public elementary schools, and of the children who had so attended, over 44 per cent. were paying no fees at the secondary schools.[1] It appears, therefore, that, while the total provision of secondary education may be inadequate, a fair proportion of school places are already filled by children from elementary schools, with or without the payment of fees. The free places have hitherto been provided chiefly in the form of scholarships, granted partly by the local education authorities and partly by the schools themselves. The weak points of the system have been three. In the first place, the scholarships have not always included a maintenance grant large enough to enable really poor children to attend the secondary school, and hence the holders of the scholarships have generally come from comparatively prosperous homes. Secondly, the number of scholarships by which a child of narrow means might be given the opportunity of staying at school beyond the age of sixteen has been very limited.[2] Thirdly, sufficient care has not always been taken to ensure each child obtaining the special kind of education most appropriate to its needs. There has sometimes been, for instance, a tendency to train second-rate clerks instead of first-rate artisans. During the last year or two much has been done towards making good these defects, and in particular the more enlightened authorities have realised that, if the provision of special educational opportunity is to be effective, it must be carefully adapted to each individual case. Unfortunately, the indiscriminate methods which must inevitably follow the adoption of the new regulations, with their failure to recognise the claims of poverty or special talent, or to distinguish between different ty secondary education, seem eminently lil accentuate the shortcomings of the existin tions without conferring equivalent advant

The bearing of the new system of gran the finances of the schools cannot be h cussed in detail. Speaking generally, the will be excellent in the case of munic schools, but schools which charge a fee or £12, and do not provide many schol will be far worse off than they were un old regulations. "In a large number of says the report,[1] "the school fee charged low to provide the requisite means for eff and frequently the large number of scholar tained has become an undue burden on the tion." But are not the new regulations lated directly to increase this evil? The very important question of the readjustn the financial relations between the local ed authorities and the schools aided by them may involve a serious loss to certain sch too large to be considered here.

The Board's last report, after dealing v condition of various classes of schools, s the situation in these words: "From the respecting the various types of public sec schools, and by the testimony of all th competent judges, it is clear that *an im standard of teaching power* in secondary is at the root of all improvements and d ments." It is because the Board has other issues to obscure this truth that its tions appear only too likely to interfere w normal evolution of our secondary educat leading it to develop along mistaken lines.

THE LONDON DAY TRAINING COL

By G. F. DANIELL, B.Sc.

> These promises are fair, the parties sure,
> And our induction full of prosperous hope.
> —*K. Hen. IV.*, I

AS Chancellor of the University of Lond Earl of Rosebery on November 2nd the new buildings of the college, f by the London County Council, for the trai teachers of both sexes for elementary or sec schools. Before dealing with the ceremony it will be advantageous briefly to revie history of the institution. The inadequacy provision for such training was keenly f the late London School Board and Te Education Board, and petitions for increased ties were presented as far back as the yea Accordingly, in May 1901, the County C decided to establish an institution, which be recognised by the Board of Education as training college, and should be connected d with the Senate of the London Universit principal of the college to rank as profes education in the University.

Work was begun in October 1902, in te ary premises in Clement's Inn, some classes

[1] Summary of Figures, p. 3.
[2] Out of 104,933 children in state-aided secondary schools only 2,826 were over 17 in May 1907.

[1] P. 53.

the School of Economics. Crowded out e latter, the college found refuge for a ne in Northampton Institute, classes being close proximity to the building and en- g shops. From this far from ideal loca- move was made to the Council's pupil- centre, Offord Road, Barnsbury; and e valuable, unpretentious work of the vas carried on until recently, with results flect great credit on the staff, whose work n greatly hampered by the scattered and le character of the accommodation.

indeed, and welcome, is the contrast af- y the noble building which has now been , at a cost of about £48,000, by the Council. It was a representative gather- ouncil and municipal magnates, of educa- orkers, with the college staff and students, stened to the opening address of Lord y, who might be regarded as representing wn person both the University and the

In a speech enlivened by many flashes he referred to the enormous growth of education since the first education grant quoting the fact that in London alone w teachers are wanted annually. Now s country has educational conscription, ion in education for all classes, we require e training that staff colleges gave to the of the Army for the teachers of so vast

This was a college of teachers: where ey to find a college of examiners? This night be divided into examiners and ex- , and the training of examiners was g as important as the training of teachers. t on to speak in eloquent terms of the nfluence of the teacher, declaring that were responsible for the larrikins and s, as well as for the boys and girls who laurels of the universities. Manhood, ood, charity, kindliness—all these could it by the teacher, not in a lesson, but by and influence. He did not know how the question would be dealt with in its or legislative aspect, but if they sent out teachers—though they might not have rtunity of giving a word of religious in- within their school hours—they were ne schools, not a benefit, but an injury. sm applied to the tender years of childhood orrosive acid, eating at the foundations of r. Teachers could foster in children the f faith, of earnestness, of honesty, of nd of a legitimate ambition.

layor of Holborn proposed a vote of thanks ouncil for providing the college, and said ugh the great public schools might be with teachers untrained for their profes- London County Council had decided that uld not be good enough for the schools s control. Dr. Sophie Bryant, speaking man of the College Committee, gave an ng statement of the early difficulties of ge, and of their aspirations for the near It was unfortunate that we were not treated to any speech from the principal of the college, whom most of those present particularly desired to hear.

A handsome pamphlet of sixteen quarto pages was issued to visitors, giving a clear and full account of the history and work of the college with a description of the building. The work of the college aims—to put it briefly—at equipping students for teaching in *any* branch of the profession. The students are: (*a*) King's scholars, undergraduate or graduate; (*b*) graduates who devote their whole time for one year to study leading to the Teacher's Diploma of the University of London. The bulk of the students belong to (*a*). About two-thirds are women, which is a smaller proportion than will meet the annual demand, since not only are more women teachers required, but also the average length of service of women teachers is much shorter than in the case of men. All King's scholars are required by the Board of Education to sign a declaration that they intend to follow the profession of teacher in an "approved" school. By a recent regulation, *secondary schools have been added to the list of types of "approved" schools*. By this pregnant addition we see that, from the year 1908, secondary-school teachers will be trained at the expense of the State and of local authorities, just as is now the case of the elementary-school teacher. Exactly how far-reaching will be the results of this revolutionary regulation, which has been so unobtrusively introduced, it is of course impossible to foretell; but it is obvious that the potentialities of the London Day Training College are greatly widened thereby. In a few years the college will send out annually a hundred men and women, all university graduates, all trained in a college with a splendid material equipment—trained, moreover, by a staff every member of which is not only versed in the *theory* of education, but has already made his or her mark as a successful practitioner of the *art*. This will be a great gain to London schools and their children, and no doubt the benefits will spread far beyond the administrative County of London.

The character of the work as now carried on is mainly influenced by the needs of the elementary schools. In all other training colleges provision is made for teaching the students the academic subjects which form part of the teacher's general education, but within the walls of the London Day Training College only professional subjects will be taught. In the science laboratories, the art department, the manual training room, the gymnasium, the students are taught how to teach science, art, manual work, and calisthenics. With the exception of a few post-graduate students, all are trained in drawing, voice-production, and singing. In future, all students will probably be required to have passed intermediate arts or science before admission. For their first two years they will spend the mornings mainly at university colleges, in preparation for taking the B.A. or B.Sc., and their afternoons mainly at the Training College and practising schools. In their third

year they will complete their post-graduate training.

Excellent provision is made for the social life of the college; the common rooms—with refreshment rooms adjoining—are spacious, well-lighted, and well-furnished. The students are encouraged to join in the games and societies of the particular university colleges which they attend, as it is hoped that by fraternising with men and women destined for other callings their interests will be widened, and a broader view and healthier tone result, than if they were kept too closely in an "educational" atmosphere.

Considerations of space prevent an attempt to describe the building, but it may be said that it is remarkably adapted for its purpose, is admirably lighted, and that the decoration is throughout simple and harmonious. The requirements of nature-study, hygiene, including anthropometry, meteorology, and photography, have been considered. In an American institution, the room of the principal would be in telephonic communication with all parts of the building; but this has been neglected here, as is usual in England. The writer could only find this comparatively trivial flaw when visiting the building in the capacity of captious critic; on the other hand, he found much to admire. He wishes that he had himself been trained twenty years ago in a college where "all the students learn voice-production; they are taught how to use their own voice to the best advantage, partly by lectures and exercises, and partly by criticism of their actual teaching performances. In addition, they are taught to train their pupils' voices, both from the point of view of voice-production and of phonetics."

It only remains to be added that Prof. John Adams is principal, and Dr. T. Percy Nunn and Miss Margaret Punnett are vice-principals, to justify the quotation with which this article began.

CLASS-ROOM PHONETICS.[1]

By HARDRESS O'GRADY,
King's College School, Wimbledon Common.

III.

LESSON VIII.—THE NASAL CONSONANTS.

Apparatus.—Chart; chalk—two colours.

TAKING again the English vowels, the fricatives and the plosives, ask where the air escapes, through the nose or through the mouth. Is it possible to make a sound with the passage through the mouth closed by the lips, or by the tongue against the palate?

m. *Military men make many mistakes manœuvring.*

What is the sound at the beginning of the words in this sentence? How is that sound produced? What parts of the mouth are used to produce it? Is there vibration of the chords in it? Where would you place it in the chart? If m is produced and the air is stopped from going through the nose, while the lips are opened violently, what sound do you get? Place square; underline it. Ask for words trate it.

n. Ask the form to pronounce d, then the air so that it passes through the no the sound becomes continuous and the vib maintained. What is the result? (If given, give it.) How is n produced? what heading shall we place it? Has tion? Ask for a set of words or a ser illustrate it? Write up the symbol for

ŋ. Is there any continuous sound, with of the air through the nose to correspor In the words *ping-pong, wrong, bringing* the sound with passage of the air thro nose? How is it produced? Is it quite to place it under g? Why or why not? shall we place it? Notice the curious the symbol. Is the sound vibrated? Ca give a sentence to illustrate it?

What are the characteristics of these m, n, ŋ? What shall we call them? (nose-sounds to the name Nasals.) A sounds continuous? What will happen t with a bad cold in the head trying to p these sounds? Why does that happen? lowing lines from *Punch,* quoted i "German Grammar," are amusing:

> Dever bore bedeath the bood
> Shall byrtle boughs edtwide,
> Dever bore thy bellow voice
> Bake belody with bide.

BLACKBOARD NOTES TO THE NASALS.—line under the plosives; write the symbo their respective headings; underline the sounds.

LESSON IX.

Sounds to be taught: l and r.

Take the sentence *Little Lulu loves lim* get the sound at the beginning of each w through the process of placing it, det vibration; give the symbol. Then, when classifies it as a "tongue and gum" s into greater detail; ask whether the tongu at more than one point and where; fix t tion carefully. Where does the air Much care is needed, as it will be necess later period to distinguish between the and German and the English l, which Pr mann in his book, "Sounds of Spoken (Dent), calls the dark l.

It will probably be remarked by some of the form that this sound is really a f the air rubbing out past the two sides tongue. It is, however, best to keep th by itself. State the reasons for this.

Give the same sentence as used for illu ɹ, *Round and round the rugged rock,* &c., the r, instead of rubbing it; give such w *india-rubber,* or, better still, pronounce a s as a South Irishman would, trilling the r. pronounce the same words and sentences fricative r, and ask for the difference in tion. After determining the presence of v of the chords, giving the symbol and pla

[1] Articles I. and II appeared respectively in the October and November, 1907, issues.

ts proper square in the chart, point out
onounce it correctly the tongue must be
rd, and must struggle with the escaping
sides of the tongue entirely close the
ne air should escape past the tip only,
tip should alternately keep yielding to
ing the air, thus beating against the
sk whether many English people pro-
is sound.

. Survey of the English Consonants.
p a chart of the English consonants,
essrs. Blackie publish, or Vietor's, and
ly through the sounds. Then put away
nd write up the consonant symbols in
, testing each individual's knowledge.
production must at once be stopped
led. Then dictate sounds to the form.
vels have now been done, whole words
ces should be given. Train the pupils,
sten; secondly, to break up the words
ds, counting them; thirdly, to write
words sound by sound. In marking
, I make each *sound* wrong a mistake,
nerely each *word*. The numbers, the
pupils, nursery rhymes, or well-worn
make good material for practice. If
xtension is thought profitable, Prof.
's book will provide quaint and interest-
ts.

Lesson X.

rench Vowels.—I have tried two
f taking these lessons; in the first, I
in the order observed above, finishing
d consonants of the English language,
tackling the foreign sounds; in the
took the French or German vowels im-
after the English vowels, the consonants
English consonants. The last is the
essful, though for the purpose of publi-
vas more convenient to follow the first
The advantages of taking the foreign
mediately after the English are these:
speaking, few periods are allotted to a
nguage; these periods are often ill-dis-
nd a form may well ask, where lesson
n is spent on the English vowels, when
oming to the foreign language. Again,
groups of sounds together at once
the similarity and the differences better
ne time had elapsed between the teach-
e groups. The method is the same,
order is followed.

us.—The Lloyd diagrams; coloured
used for the English vowels.

p, in proper order of tongue position
colours determined upon, the English
hen direct the attention of the form
t that certain of these vowels do not
rench; rub out ɪ, ʊ, æ, and ʌ. Tell
at the French language, however, con-
in sounds not found in English. Give
in which the sound y occurs. Such sen-
be found in Mr. Dumville's excellent book on French pronunciation (Dent). I borrow at random the following: *Tu eus plus d'une culbute.*

Ask what sound there is in the sentence which they have not in English. Take the chalks of the colours allotted to i and u, and write next to i, on the inside, the symbol y, half of the one colour, half of the other. Pronounce the sound again, and ask for what reason the class thinks you have done so. If no satisfactory answer is given, point out that the tongue position of y is that of i, but the lip-rounding is that of u. Point out that for each vowel so far there has been a different tongue and lip position from that of any other vowel; now, however, you have a sound with the positions of two other sounds. Take as an exercise i-y-u, u-y-i, and for blackboard illustrations I recommend the use of Mr. Dumville's diagrams to illustrate the movement of the tongue from y to u, that of the lips from i to y. This sound has always needed much practice in my experience, the English tendency being to let the tongue slip back to u, or half-way to u.

ø. Take another of Mr. Dumville's examples:

Monsieur veut deux œufs (msjø vø døz ø), and ask the form if they notice any un-English sound in it. Treat ø in exactly the same way as y, writing it up next to e for tongue position, and drawing the attention of the pupils to the lip-rounding. Ask them what other vowel has that lip-rounding. Write ø in the two colours of e and o.

œ. Ask if anyone can produce experimentally a vowel sound with the tongue position of ɛ and the lip-rounding of ɔ. With a little patience œ should be given correctly. Write it up in the two colours of ɛ and ɔ, and give examples of the sound in French words; Mr. Dumville gives us: *Leur cœur demeure jeune.*

Lesson XI.

The French Nasal Vowels.—Sounds to be taught, ɛ̃, ɑ̃, ɔ̃, œ̃.

Tell the form that you have still four French sounds to deal with, sounds which occur practically only in French. Revert to the fact noticed that the air can pass out either through nose or mouth or through both. Ask if anyone can produce a different sound from ɛ, keeping the lips and tongue in the same position as in ɛ, only letting *some* of the air escape through the nose. If no successful result ensues, read them the following, and ask them what vowel sounds in the poem they have not yet had:

Le hibou parmi les décombres
Hurle et décembre va finir
Et le douloureux souvenir
Sur ton cœur jette encore ses ombres.

Or say several times *Un bon vin blanc.*

(*Note.*—Exaggerate both nasalisation and vibration of the nasal vowels.)

Take the simple vowels ɛ, ɑ, ɔ, œ, and tell the class that from these may be produced the French ɛ̃, ɑ̃, ɔ̃, œ̃, by forcing some of the air through the nose. Make the class practise the following exercise. Without making any sound at all, breathe alternately through nose and mouth, then breathe through both

together. If possible, get each pupil to become *conscious* of the muscular movement of the uvula. Lastly, when each one says he can manage both intake and expiration using both nose and mouth together, ask the pupils to place their lips and tongue in the position of ɛ, and, sounding, to breathe out through nose and mouth simultaneously.

Do this with ɑ, ɔ, and œ. Write up one below the other the mouth-vowels; then draw in red the mark over the symbols to show the nasalisation, ɛ̃, ɑ̃, ɔ̃, œ̃.

LESSON XII.

THE GERMAN VOWELS.—Write up the English vowels, and rub out æ, ɑ and ʌ, pointing out that these do not exist in German.

Treat y, ø, and œ as in French. The following sentences may prove useful, though teachers will probably provide better examples:

y. *Im Frühling blühen die Blüten.*

ø. Goethe's *Lieder sind schön.*

œ. *Dem Mörder gönnen die Götter keine Gnade.*

Point out that ø is always long, and œ always short.

General remarks on French and German y, ø, œ.

Practise i, y, u; e, ø, o; ɛ, œ, ɔ; make the class give the tongue and lip position of i, e, œ; then form the "mixed" sounds, keeping the *tongue* rigidly at the same position, round the *lips*, to the position of u, o, and ɔ.

Practise also i, e, ɛ; y, ø, œ; u, o, ɔ.

LESSON XIII.

THE FRENCH CONSONANTS.—Draw on the board the chart of the English consonants, and rub out θ, ð, h, and ŋ, pointing out that these do not exist in French.

ɲ. Point now to the place occupied by ŋ and say that there is another nasal French sound produced very near ŋ in the mouth. Ask the form to ridge up the tongue as when producing ŋ, and then to ridge it up more forward along the palate, thus taking up a position in front of that occupied in the production of ŋ.

Give the following example (from Mr. Dumville's book), *Le seigneur a daigné épargner les vignes des Espagnols.* Make the class repeat. Watch carefully for any substitution of nj for ɲ. (Mr. Dumville has a page on the correct production of this sound.) Write up the symbol under front palate and tongue; determine vibration.

ɥ. Direct the attention of the form to the fact that several of the vowel and consonant sounds are closely connected. Thus, in French what consonant sound is taken very near to u? What consonant is produced very near to i? Pronounce ui, wi, ui, wi: ia, ja, ja, ia. Ask them to pronounce y, and then narrow the lips together still more. When ɥ is given, get by questions the positions and vibration, and place the sound in the chart. Give the exercise yi, ɥi, yi, ɥi. Mr. Dumville gives us *La lune luit depuis huit nuits.* He also calls the sounds w, j, and ɥ half-vowels.

FRENCH l.—It is questionable whether, in such elementary lessons as these are meant to be, one ought to go into the details of the differences between French l and English l; it may be sufficient to insist on the blade of the tongue being much more forward in the mouth in Fren this does not give the required result, the paragraph in Mr. Dumville's book will be use.

R. Uvular R I do not teach until much at all.

LESSON XIV.

General revision of the French sounds. up a series of words containing the sounc exist in French and not in English. reading them and by dictation of Frenc

LESSON XV.

THE GERMAN CONSONANTS, ç, χ and ʔ.— the board the complete chart of the Engl sonants. Then rub out deliberately θ, ð, that they do not exist in German and poir that Germans, without phonetic training, pr when speaking English, the corresponding t, d.

ç. Ask the form to produce the first s *yacht.* Is it vibrated? Try now to produce with the tongue in the same position as that *without* vibration. Some practice will give Give the sign for ç, place it next to j, then w series of German words in phonetic script to this sound. There is always a strong tenden English boy to pronounce ʃ instead of ç. two sounds and compare them. Give on tl such pairs as kɪrçə, kɪrʃə; then set the oral j, ç; j, ç; j, ç; j, ç; j, ç; and ʃ, ç; ʃ, ç; ʃ,

χ. Call the attention of the class to the pr tion of the Scottish *loch*, and point out that tl exists in German. Produce it and ask them it is a fricative, plosive, nasal, or like l or r; it is vibrated or not. Now ask them to pl tongues almost in the position for plosiv instead of closing the air passage by pres tongue against the palate, to let the air r between tongue and palate. I have found with ease by this means. Give the symbol where it shall be placed. Give sentences *Mach' auch dein Buch zu.* Practise k, χ; k, and u χ, ɔ χ, a χ. Point out that one alwa after i, ɪ, e, ɛ, y, ø, œ, and χ after u, ɑ, ɔ. reason why.

ʔ. This is a most difficult sound both initially and to get used in practice. Tr lowing method first: ask the form to pr and ask where it was decided the sound w Now by patience and practice try to g pupil to open and close the glottis at wi may be done at first by producing pairs of and unvibrated sounds, centring the on the movement in the throat, then se vocal organs in the position necessary to (*a*) the vibrated sounds; (*b*) the unvibr *without making any sound.* Next try to open the glottis suddenly. After a time th stop should be given, with a quite clear takable click. It may be interesting point out the affinity of the cough, the cl the throat, and the glottal stop, and the for them. The sentence *es ist um e* given (*a*) with voice, (*b*) through the w

ll admirably exemplify the use of the
o before words beginning with vowels

LESSON XVI.

REVISION OF THE GERMAN SOUNDS.—
erman words and sentences containing
sting in German but not in English.
ding test.

LESSON XVII.

ANGE FROM PHONETIC TO ORDINARY
am not one of those who affirm there
culty to be experienced here. I have
change to be an extremely delicate
and adopted a coloured chalk for
ript as against white for ordinary spell-
er to obviate the chances of confusion.
step with myself is to take some ten,
twenty lessons of the book to be used
script first, and to do those lessons
and forwards until they are outwardly
ly known. The first twenty numerals
Then I write up the letter in phonetic
ordinary script against each; next, I
ssons one by one with phonetic and or-
ipt, reserving one side of a very big
for the purpose of orthoepy, each
ng given with the letter or letters which
e it up in French and German, as in
ou; ε—ain, ein, aim, eim, in, (i)en. This
ous process, and must be interspersed
ions round the form and devices for
g interest. Mr. Cloudesley Brereton
eaching a song or a poem and writing
onetic version next to the ordinary or-
But it is from Miss Dale's system
rds that the best method is to come.
rged her to help modern language
y publishing a little book. I am un-
se articles to describe the details of her
my suggested adaptation of it. A
n of the methods suggested above, to-
h division of foreign words into the
letter groups representing separate
ch as gut, g-u-t; schauen, sch-a-u-e-n;
Ch-a-r-l-(es) (the brackets to enclose
ed letters); bien, b-ien; maison,
will give satisfactory results.

ISED VIEWS IN HISTORY.[1]

By A. J. EVANS, M.A.

III.

or six European Powers face the
tic—Spain, Portugal, France, the
erlands, and the Scandinavian States.
ace to India, Portugal won *via*
of Good Hope. Spain, trying
stumbled instead on a barrier, which
e thought was the goal, but after-
covered to be America. Portugal
Spain claimed the rest. The Nether-
ted against Spain, and plundered her
t, and, while Portugal was held by
Spain (1580–1640), in the east as well. The ten southern provinces were reconquered, and became the "Spanish" Netherlands; the seven northern made good their independence, and "held the gorgeous East in fee" besides settling New Amsterdam. The Scandinavian States did little. The day of Denmark-Norway had apparently long passed away, and Sweden was absorbed in religious and dynastic wars with Poland. But France and England began feeling westward in the sixteenth century, and in the seventeenth began to colonise.

While Spain was the common enemy, England and the United Netherlands were friends, though not very hearty friends. They did not love one another in the East. But when, in 1648, Spain finally acknowledged the independence of the United Netherlands and Portugal, England and "Holland" fell out, and, neglecting the growing power of France, fought three wars about colonies and commerce. England won. Then the two realised that France was the champion of herself and Rome; they drew together, dynastically (two Williams married two Marys) and otherwise, and William III. united them in a personal union. The war begun by William against France proved for us to be a second century-war, out of which the Netherlands gradually fell, from weakness.

Note the similarities between our two long wars with France. Edward III. still held what was left of the south-west of France that had been brought to the Angevins by Eleanor of Aquitaine, and the war was waged to maintain the connection between Bordeaux and Bristol, which were engaged in a mutually profitable trade in wine and wool, as well as to support the manufacturers of wool in the Low Countries. Seventeenth- and eighteenth-century England and France had colonies in America, which were used, like all colonies of that time, to provide an exclusive market for the produce of the home countries. Control of the sea gave easy access to Continental France in the Middle Ages. The same control was necessary to be able to attack American France in the eighteenth century. In the Middle Ages we tried to find allies in the Empire, *i.e.*, Germany. Was not Edward III. vicar-general of the Empire? Did not the Emperor Sigismund make a treaty at Canterbury with Henry V.? In the later war we were always fortunate whenever France tried to conduct war in Germany as well as on the sea with Great Britain. But in the Middle Ages the ruling forces were on the side of France. Nationality was too strong for the absentee claimant to Aquitaine or Normandy, and after the weary raids of Edward III. and his son, the incompetence of Richard II., the wanton victories of Henry V., and the miserable failure of Henry VI., France at last attained peace and unity under a strong monarchy. In the eighteenth century France attempted too much. She could not fight Germany, even disunited, at the same time as Great Britain, and the victory of Great Britain in America was complete. There are other explanations, therefore, of the results of these wars than

[1] II. appeared respectively in the October and November,

the popular notion that one Englishman is equal to *x* Frenchmen.

It is best to regard these wars from the point of view of France. Thus, we shall find, besides the wars of William III., of Anne, of the Austrian Succession, the Seven Years' War, the War of the American Revolution, and the wars of the French Revolution and of Napoleon, that there was another war, that of the Polish Election (1733–8), in which Great Britain did not take part, and which is therefore omitted in most of our text-books. It was the war by which France finally gained Lorraine, and by which Great Britain lost the goodwill of her old ally, the Habsburg of Austria. But what did they fight each other for? Southey professed he did not know ("Battle of Blenheim"); Swift, in "Gulliver," compares the cause of dispute to a controversy as to which end of an egg should be broken. The opposition party throughout the century said the wars were all on account of Hanover. Our text-books tell us much about the fighting in the Netherlands and in Germany, but little, if anything, about the contest in America, at any rate before the middle of the century. In Marlborough's wars, *e.g.*, the events are Blenheim, Oudenarde, Ramilies, Malplaquet, and, if anything else, Gibraltar and Barcelona. Only the terms of the Treaty of Utrecht introduce Nova Scotia, Hudson's Bay, &c. Yet our books neither explain nor apologise for the omission. How unreal, nay, how "weary, stale, flat and unprofitable," the whole story is! Whether in the international history or the constitutional, everything seems to end at 1688. At any rate, what comes after has no apparent meaning.

But, if we turn to Bancroft's "History of the United States," we find a continuous story, in which the "War of the Spanish Succession" is the heading of a chapter. We begin to realise that *something* happened in North America between the landing of the "Pilgrim Fathers" (1620) and the "revolt of the American Colonies" (1776). And if we follow up the clue, we find that, increasingly as the years went on, the war is not so much between European France and England as between American France and England. It is true that William III.'s war was to maintain himself on the English throne, and that it was, therefore, a war of the Protestant succession, that Anne's war was occasioned by Louis XIV.'s proclamation of "James III.," and was therefore but a sequel. But the "45" was but a by-product of the war "of the Austrian Succession," and in the next war Choiseul, the French Minister, being approached by the Stuarts, replied that he would have nothing to do with religious questions. So the Stuart question faded away. But, as we have said, the war of the Spanish Succession was an American war, both north and south. The war "of the Austrian Succession," so far as Great Britain was concerned, began with a quarrel in the Spanish seas; the interval of "peace," 1748–56, was filled with quarrels in America and India; and after that, even the poorest text-book knows of Clive and Wolfe. The wars of 1792–1815 were also w dominion of the seas and what could be in that direction, but to prove that it would take us too far. Two points only First, in the two wars which France wag only one enemy (Polish Election: only and American Revolution: only Great Brit won. Only when we or our German frien helping one another could we check o her. Secondly, our allies varied, and w enthusiastic for each in turn, so enth indeed, that the opposition, whose opir have always taken, believed, or affected to in the enthusiasm, and complained that v sacrificing ourselves! We were neither su nor so enthusiastic. We would help anyc was our enemy's enemy, so far and no and we had a trick, when we were tirec fighting, of leaving them in the lurch. W Austria think of us in 1713, and Prussia i A counsel of perfection would be, no d study European history to find the why a of this German policy of France, and e to help us through the maze of wars of 1 But for that we have no time, not, at a until European history shall be a class as it is in every country but this.

What was the effect on our constitu this long period of war arising out "bloodless" Protestant "revolution," our desire for expansion? For, *pace* ou guides, there *were* changes in the const and the method of governing this country the same as it was in 1689. First, it nece a succession of foreign Kings. We Dutchman, and then, after Anne (who, Stuart she was, dared not restore her and for a long while had to continue against him and his friends), two G William III.'s position is unique among o reigns. He was the most "constitu King we have ever had. The union betw and the nation, as represented in Pa was based purely on mutual interest. his constitutional powers to the full, " Bills, "influenced" the members of Pa chose his own Ministers, found himsel to employ only Whigs, and was his own Minister. The Parliament, varying acco the results of triennial general election in turn varied with the moods of the " which again depended on William's su the battlefield or the danger from the tender," would, and then would no heartily with him. They behaved perfect rectly" to one another, but there was lost between them. Two documents m reign, both fondly regarded as "fundar laws, on which our "liberties" are (v supposed to be based. The "Bill of I records what we disliked in James II., th of Settlement" what we disliked in Willi The former has been allowed to stand, harmless. Much of the latter had to be or modified before many years had pass

y, the two parties which had begun in 1641, and had got names in ime slowly defined. The process may led as complete at the beginning of 's reign. The Whigs were the more Protestant party, and their allies were tant dissenters. They were therefore in the war and of the Toleration Act of on the whole they prevailed until 1710–11, r folly in prosecuting Sacheverell made rch policy unpopular at home, and the the Emperor Joseph made their war ossible abroad. The Tories were the usly Protestant party; they disliked s a foreigner, objected to the war and ition Act, and in 1710–11 passed Acts ie Protestant dissenters and brought Peace of Utrecht. The death of Anne eir ruin, and the failures of the "15" 45" only proved that original Tory- dead. Thirdly, the definition of the ought the necessity of homogeneity in of the King's Ministers, and this the existence of a "Cabinet," or secret f the chiefs of departments. It was in the Act of Settlement legislated against stitution; it was completed when George o the throne, and the Whigs, taking of his ignorance of English affairs, l themselves firmly in power.

sults of the war were the Parliamentary h Scotland, which put an end to the of England and Scotland, and inaugu- Kingdom of Great Britain (1707), and the ent of the Bank of England in order another consequence of the war, the Debt.

the commercial classes and the land- w having gained a permanent place in itution for their representative, the Commons, a new era was introduced tionships between the mother country colonies, and the long friction began led at last in the partition of the pire in 1783. Penal laws were multi- rotection of property, until there were ons hanged in a single year of George n for petty theft than had suffered for der "bloody" Queen Mary.

is the typical product of this period upremacy. He is the King's Minister, ends on the House of Commons, which, ie can "influence" until the clamour n merchants and the discontent of leagues drive him from office in 1742. on is best understood by consideration ition of the Chancellor in the present Empire. He did *not* say "All men price," nor did he inaugurate the use y." He protested against being called " Minister.

said that old Toryism died at Culloden. add that old Whiggism died there too. stic struggle into which the reli- rrel had developed was ended, and neither "Whig" nor "Tory" had any meaning. "Whigs" were merely those who were in, "Tories" those who were out. George II. could not free himself from the tyranny of the Whig nobles, but his grandson did. Trained in Bolingbroke's principles of "patriotism" (none for a party, all for the State) he succeeded, after ten years of struggle, in re-establishing "personal government." His party got the derelict name of "Tory," which was thus utterly changed in meaning. Unfortunately, George III.'s Ministers were not geniuses in statesmanship, and the great conflict which occupied the first part of his reign, that with the American colonies, was a failure. It was scarcely his fault. His policy was popular at home, and was supported by many in the colonies. The disruption must be attributed to the vigour of certain leaders on the American side, to a series of military blunders on the British side, to the help afforded to the colonists by France, but, above all, to the breadth of the Atlantic and of the *hinterland* of the colonies. It did no more than shake George III.'s rule, for after two stormy years the Whigs failed once more against the King's opposition, and partly owing to certain "economic" reforms which were effected in those two years, partly to the purity of the younger Pitt's administration, and partly to the unanimity with which the nation entered into the war with France, the new Toryism triumphed and held the field until 1832.

How slowly our modern constitution came into existence may be realised from two facts. Pitt's premiership was regarded as a "novelty" by the Portland Whigs in 1797, *i.e.*, they regarded it as "unconstitutional." The Whig Ministers of 1806 denied that they formed a "Cabinet." When *was* the first Cabinet? and when the first Prime Minister? It is exceedingly difficult to say. Both were unknown to our Statute Book until a very few years ago.

Meanwhile, alongside of the Britain which was fairly well represented by the House of Lords and Commons, there had grown up a new England. There had been a revolution in agriculture and industry. The old system of common fields had passed away, and hundreds of enclosure Acts had legalised the change which gave us our hedgerows. The uses of steam had been discovered, and many new processes in spinning and weaving had brought in the era of factory towns. All this was engineered by a rising middle class. While the war lasted, the nation was satisfied with being, but when the rising of the nations had swept away Napoleon, there was throughout Europe an expectation of change in systems of government. This was the opportunity for the English Whigs, who had been out of office almost continuously for fifty years. In the face of this new phenomenon, the old struggle between Tory and Whig had ceased to be of importance. It was not an improvement of the old system that was wanted, nor a removal of some of its more glaring anomalies. It was the introduction of the new middle class into the old constitution

that was seen to be necessary, if Government in this country was to have a stable basis. Naturally, the need was not obvious at first sight to those who were in possession, and the Tories were divided into two kinds, those opposed to all change, like Eldon and Wellington, and those who would modify social conditions, improve systems of taxation, and even make moderate changes in the constitution. Such were Huskisson, Canning, and Peel. The inevitable struggle roused passion, and it was out of this passionate struggle that the Whig theory arose, which, through Hallam and Macaulay, has coloured all our text-books. It was so great a revolution that was intended that it was necessary to prove that the Tories were all wrong, the Whigs all right; and as Englishmen always believe that their particular party is the *true* conservative that is based on the old constitution, it was necessary to show that the present system was a perversion of the "golden ages." Hence the belief that the "Revolution of 1688," so "legal" and so "bloodless," had introduced the "true" constitution from which the Tories (not, of course, the Whigs—their oligarchy was forgotten) had departed, to the prejudice of "true liberty" and the "rights of the people."

It was ever so in our history. Under the Normans we asked for "the laws of Edward the Confessor"; against John we appealed to the charter of Henry I. When, in 1297, the newly born States General revolted against Edward I., it was as a "confirmation of charters" that they got practical control of taxation. Henry VIII. justified our greatest revolution by alleging that it was "by divers and sundry old authentick histories and chronicles, manifestly declared that this Realm of England is an Empire, and so hath been accepted in the world." The Church of England believes that it is based on the first four centuries of Christendom. The Stuart Kings based their action on Tudor precedents; their opponents appealed, on the contrary, to Plantagenet and Lancastrian custom. The Whigs of 1688 went farthest back of all, and laid it down that James II. had "endeavoured to subvert the constitution of this kingdom by breaking the original contract between King and people," and had "violated the fundamental laws." We need not wonder, therefore, that the Whigs of 1832 should also believe that the Tories were wickedly trying to prevent what was so obviously right.

But it was a revolution that happened in 1832, quite as much as the almost contemporary revolution in France. There the middle classes had exploited the desires of the "people" to establish a "middle-class" kingship. Here, too, in fear of what might happen if all change were refused, in fear, too, of actual rioting and possible civil war, the King was compelled by the Ministers to threaten to "swamp" the House of Lords, and so compel them to assent to a revolution which finally put an end to the control of both. In 1831 William IV. thought he could still change his Ministers at his own discretion. The next General Election showed him that the ne tors were not amenable to the "influence the Crown had exercised over the old.

We have gone through another revolutio then. We have admitted to the cons practically all the manhood of the nation, more recently admitted are just beginn realise their power. They have completely their backs on the Whig theories of a ago. They believe neither in the midd monopoly of power nor in the individualism Bentham taught and the Liberals pr We can therefore now see that Halla Macaulay are no more infallible than other of the past, and we can, at any rate, wr history down to 1832 with more impartiali they. Later than that, it is not easy And as we have as yet no dominating sc quite modern history, it is unnecessary t any more views.

THE PROBLEM OF MORAL INSTRUC

PERHAPS the child's greatest enemy adult, and if not the most dangero of adult, certainly the most tires the adult who will insist on pointing the m his stories. When these moral-pointing bind themselves together into a league an "nobble" the education authorities; wh are bold to say that their plan will del from all our religious squabbles by delive from all necessity for religious instructio time to speak out clearly. Mr. Major's bo as unimpeachable as Mr. Pecksniff, but after working through all these stages wou ably feel much as if he had enjoyed f years continuously the society of Mr. Pe if he escaped this fate, it would not fault of the system, or the books, but teacher. If there must be direct moral tion, the book by Miss F. H. Ellis is vas preferred, for the simple reason that it is come of practical experience, and she h pains to get her moral "thought" for t worked out, as far as possible, not onl moral lesson, but in the Scripture, the lit the history, the manual work, and even the The moral lesson is not a separate subject through all. But, even here, there has h a good deal of stretching to make things f the "thought" is courage; Grace Darl

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1 "Character Forming in School." By F. H. Ellis. (Longm "Healthy Boyhood." By A. Trewby, with Introduction b Duckworth, and Foreword by Earl Roberts. (From the Aut House, Hampstead Heath.) 1s. 6d.
"Moral Instruction." By H. Major. Junior, Middle, and Sen (Blackie.) 1s. net each.
"A Scheme of Moral Instruction." By Canon E. R. Berna Davis.) 6d.
"The Bible Story." By Helen N. Lawson. (Macmillan.)
"Old Testament History." By Rev. T. Nicklin. Part ii. (
"Bible Lessons for Schools: Genesis." By E. M. Knox. (S 1s. 6d.
"Readings in Old Testament History." By Rev. A. R. (Rivingtons.) 2s. 6d.
"Scripture and Truth." By the late Benjamin Jowett. Repr Introduction by Lewis Campbell. (Clarendon Press.) 2s. 6d. ne
"The Book of Esther." By Dr. A. W. Treane. (Pitt Press.)
"The First Book of Kings." By Dr. A. E. Rubie. (Methue

l Goliath are the stories that illustrate; n follow, but when the daffodil is next in- s "Nature's warrior flower," because it -like leaves and a trumpet-shaped flower, that either this is forced or else William rth must be rewritten. Was it a war- en his heart filled with fancy and danced affodils? In spite of this, if one is going : moral instruction, Miss Ellis's book is n any we have yet seen. Canon Ber- le manual is carefully done, but it pre- through a previous knowledge of the y in the children, and what one usually al life is the most amazing ignorance of familiar Bible figures and scenes. hese incurable adults are in danger of is that moral goodness is not so much moralising as caught by contagion; cation is not so much preaching morals ı as living morals with them. Goodness plastered on in patches, or applied in a poultice. Telling is not teaching. The ructionist has no faith in anybody but ınless he points the moral, he doesn't ere is any moral effect. The teacher, her hand, trusts the child to form its usions; he has the quiet faith of the hus- who is content to await the result of ard, and unseen growth. The best the teacher who holds up the picture he image do its own work in the inner o refuses to rob the child of his own iew of things, and has faith that the art-need, as Froebel calls it, will find its nutriment. All story is moral; every hears a story has its own moral thought bject; to force our adult views upon it ıses and retards the growth of its own

ewby speaks straight, simple words to he subject of self-abuse. We cannot ı his alarmist estimate as to the number ho practise this vice, though he quotes uthorities. To put it at over ninety per ıbsurd exaggeration. But the evil is ıough, and both parents and teachers dly silent on a subject which is really a life and death. To such as wish to do in the matter, this little book should be

to the books on the Bible, it is a happy o reprint those essays in which Jowett e Bible in the nineteenth century what Erasmus did for it in the sixteenth. ency to edification has obscured the ssage of the Book in much the same way endency to scholasticism; both are n," though in different senses of the

icklin completes his Old Testament r sixth-form boys. It is a sound and piece of work, with maps and illustra- t illustrate. For junior forms those best which allow the Bible to tell its ts own way and in its own words. In this respect Miss Lawson's book is much the best of those that lie before us, though she makes the mistake of mixing in the New Testament with the Old (thus disqualifying her book for use in schools attended by Jewish children), and we cannot congratulate her on the picture of Abraham entering the promised Land of Canaan; there is still need of a pre-Raphaelite school. Miss Knox is far too fond of pointing the moral. "The great lesson of Sodom and Gomorrah is that we cannot serve God and mammon," (Joseph) "giving bread to dying nations as Christ gave to the world the Bread of Life": such things as this are utterly beside the mark—mere ballast; but they please the adult mind. Mr. Whipham's book is open to the same criticism: Noah's ark is a type of the Church, and we have two quotations from the Baptismal service. Either this sort of thing produces no effect at all (like the quotation from Paracelsus), or else its fosters a perverted notion of the Bible story.

Both the commentaries which lie before us contain sound work. Dr. Rubie's book is a good one for local examination purposes. Dr. Treane's "Esther" is for more advanced scholars; it is scholarly, frank, and up to date. Perhaps it was the "heathenish naughtiness," as Luther called it, of his author which caused such a sentence as this: "In this section we are shown the strange concatenation of apparently trivial circumstances which collectively have the effect of bestowing the highest reward and most signal disgrace upon the humble and virtuous Israelite and the highly placed enemy of that people." Such is the language of adultism when mounted on academic stilts.

A NEW VIEW OF JULIUS CAESAR.[1]

WE took up this book with a vague feeling that it would be an imitation of Gibbon, which was caused by its title; but we soon found our mistake, and before we had read many pages we were absorbed by its enthralling interest. We use these words with intention; they are not exaggerated. Whatever may finally be decided as to its authority, there can be no doubt as to its remarkable hold upon the attention. It is impossible to put it down; our sympathies are deeply engaged for the actors, who walk before us as real living men, whether the men whose names they bear we do not yet say. In fact, the picture they represent is in so many respects different from tradition that it would be rash to pronounce finally on that matter before we have had a long time to ruminate upon the new picture. Besides the lifelike picture, the author has the merit of an admirable and pointed style, and he has been fortunate in his translator. Another point of importance are the frequent allusions to modern conditions, in which care is taken to explain the presence or absence of conditions that affect the

[1] "The Greatness and Decline of Rome." I. The Empire Builders; II. Julius Caesar. By Guglielmo Ferrero Translated by Alfred Zimmern. vi+328, vi+390 pp. (Heinemann. 17s. net.

problems under examination. Politicians ought to find here valuable lessons in caution, which may even lead them to wisdom, if they are capable of being taught anything.

It is impossible to discuss all the persons of the drama; Gracchus, for example, or Catiline, Lucullus, Crassus, the adroit Curio, and Clodius; Sulla and one or two others appear much as usual. But the attention is fixed chiefly on the great riddles of the last days of the republic—Brutus, and Pompey, and Caesar himself. In Brutus the real key to the puzzle, in our author's opinion, is vanity with underlying feebleness. "He loved to pose as a hero of iron will and unshrinking resolution, a model of those difficult virtues which can only be exercised by dint of painful self-mastery." He was thus an easy victim to the wiles of Cassius, a clever and subtle man, who was the real source of the conspiracy against Caesar. Pompey is the typical aristocrat; a great man with genuine ability, but no originality, who all his life had been the spoilt child of fortune. His greatest apparent feat, the subjugation of the pirates, was a sham: in a very short time after, they are found as active as ever. On the other hand, Caesar all his life was crushed under a mass of difficulties, which to overcome he had recourse to a succession of desperate expedients that brought him again and again to the verge of ruin; and when at last he found himself in a position to work out his far-reaching ideas, he was killed. M. Ferrero allows him almost every claim to greatness, but will not allow him to be a great statesman; to him Caesar appears as a great opportunist, and he depicts Caesar a prey to doubt and hesitation and uncertainty, but recognises that when Caesar made up his mind to a course he acted with lightning swiftness and the most ruthless energy. But all these, Pompey, Caesar, and the rest, were blindly working out the secret irresistible tendency of the time, the change of a self-centred agricultural community to an industrial State; and he sees in the same tendency the cause of the new imperialism, begun by Lucullus, its most successful leader, and carried on by others for various reasons, personal or political.

This is certainly a new view of Caesar, and in a less degree of many of the other actors in the tragedy; and we must leave it to readers of the book to examine the grounds on which M. Ferrero bases his view. To our mind, even if his view be not fully accepted by scholars, he has done a great service in reducing the chaos of those times to some kind of order. We have felt admiration for the lucid way in which he handles the complicated and confused materials of the tale, and we are glad to see that the Cambridge Modern History has not said the last word on historical style.

The Prologue to Piers Plowman. Edited by C. T. Onions. 24 pp. (Marshall.) 3*d.*—A very useful addition to "The Carmelite Classics." It has notes on grammar and metre, a glossary, and a set of questions.

BRITAIN BEYOND THE SEAS.[1]

THIS, the first of two volumes promise the author of "Where Three Em Meet," is most valuable for teachers c history and geography of the British Empir deals with the "Nearer Empire," *i.e.*, the terranean, African, and American possessio the United Kingdom. A short account of I is included on account of the importance of E interests and influence along the Nile and the Canal. The second volume will deal with and Oceania. Interesting, and therefore oughly readable, this first book fulfils the pr of the opening words of the preface—"in a of moderate compass to give a compreh account of the British possessions beyond th —to explain what the British Empire is; l came to be; the history of its growth; the cal, political, and commercial geography various parts."

The scheme throughout is methodical; a l cal section introduces each colony to the r and then in their order come notes on the lation and area, physical geography, produ industries, towns and communications. It up to date; the new constitutions of the Tra and of the Orange River Colony are intro the railways of Rhodesia are brought up to head," and the ultimate connection of the trunk line with Lobito Bay foreshadowe Kingston earthquake is alluded to.

Statistics present the usual difficulty, a author notes it with a word of warning preface. They are always changing, and more so than in the case of young and colonial olive branches. We do not thir Knight has met the difficulty as well as he His statistics range over three years, 190. would have been better, certainly more us have confined them to one year, and t reduced them as far as possible to percent

The maps are good. They are nine in r all coloured, and of a fair size. Three are world-maps of temperature, rainfall, ar tation, and their insertion is most comm though we can find little reference to ther text; the rest are political maps of larg Naturally, therefore, they do not indic details of the various colonial subdivisio the need of small black-and-white sketch most marked. To follow the author in hi lent remarks on the various islands of th Indies, or the railway projects of the Gran and Northern Railways of Canada, or the i for the warmest month in Canada, on th provided, is impossible. We have notic that his letterpress here and there differs from his maps both in substance and in s We suggest revision and addition here future edition, or editions, which the bo deserves.

A few other points will also bear alter modification: the capital of North Rho

[1] "Over-sea Britain." By E. F. Knight. 324 pp.; maps. 1907.) 6*s.* net.

and not Kalomo; Ungava is now Quebec and no longer one of the ritories"; "Gondoroko" may be a or for Gondokoro, but the author onsible for using the same spelling, ıether he means *cacao* or *coco*-nut; ıte to say that the *bite* of the tsetse the French dispute is not the only question" in Newfoundland; the of New Caledonia, though they combly in quality of ore produced with lbury, are far behind in quantity; ertainly both a cattle-ranching and ıg province, but the cattle are being r and further north, as the rich lands are coming under the plough. are small holes to pick in what is satisfactory piece of work, and one the metaphor—most diplomatically There are many controversial points ırise in an account of the growth of Empire. Mr. Knight preserves a ıe expression of his own convictions. ; over what England lost (?) in the f Africa," or eulogises Lord Milner, of the maxim that "Trade follows e is at the same time careful to note pire, notwithstanding its great men, wed," like Topsy, that, after all, our led Colonial policy was largely a , and that the employment of Chinese ıbour in the Transvaal was an exen from the first. Teachers and ıts should get this book, though we ıat the publishers had seen their way a slightly lower price.

IES IN ENGLISH LITERATURE.[1]

nised American series of "Types of Literature" is going to be, all of ıod as its first volume, Prof. Francis ccount of "The Popular Ballad" (1), for a very notable addition to English cism. It would be impossible to ghly either the matter or the manner mmere's book. He has the advanıesis to maintain—the thesis of the n of the ballad, disputed by so high on the history of English poetry as ope—and he maintains it with skill, eloquence. His point of view can ɔst clearly by quoting his definition ır ballad—"a poem meant for singmpersonal in manner, narrative in bably connected in its origins with ıl dance, but submitted to a process ion among people who are free from ıences and fairly homogeneous in

is divided into four chapters. The first discusses the specific marks of the ballad, its structure, the choral and epic elements in it, and so forth. The second classifies the ballads—the oldest groups (riddle ballad, stolen brides, domestic complications, ballads of the dance, &c.), ballads of kinship, the coronach and ballads of the supernatural, legendary ballads, border ballads, greenwood ballads. In the third chapter the sources are handled, and in the fourth the value of the ballads—"a murmur of voices in concert, borne over great stretches of space and through many changes of time"—is ably championed. The final passage, it is hardly too much to say, has something of the nobility and earnestness and musical quality that are so profoundly moving in Sir Philip Sidney's "Apology for Poetry."

Though Mr. Maynadier's Arthurian study (2), which also comes to us from America, can hardly take rank as a contribution to literary criticism with the remarkable book we have just noticed, it is still very good of its kind. What that kind is may perhaps be indicated most clearly to the English reader if we describe it as a series of University Extension lectures of the best type. Yet such a description would do a little less than justice to the amount of research which has gone to the making of it.

Many books have been written on the Arthurian legends, but there is none, so far as we know, that precisely covers the ground traversed by these lectures. They treat the early origins and growth of the legends with a good deal of fulness, so that Malory is not reached till the thirteenth chapter out of twenty-two; and their later history is followed carefully through the English poets from Spenser to the present time. The treatment of Tennyson's "Idylls," though appreciative, is very slight; but this is in one way an advantage, as more room is left for poems that are less familiar to most readers.

One of Mr. Maynadier's stories is too good to be omitted, even from a short notice. Giraldus Cambrensis, wishing to intimate that he has no high opinion of the veracity of Geoffrey of Monmouth, tells a story of a Welshman, Meilyr, who had the power of detecting a lie, because he always saw a little devil exulting on the liar's tongue. If Meilyr was in the presence of a book containing falsehoods, evil spirits would swarm on his person; but if the Gospel of St. John was placed on his bosom, the devils immediately vanished. Once the history of Geoffrey was substituted for the Gospel, with the result that the devils reappeared in greater numbers, and remained a longer time than ever before. Such were the amenities of mediæval reviewing. Happily, on this occasion at least, a modern reviewer need feel no desire to emulate them.

ılar Ballad." By Francis B. Gummere. ("Types of "edited by Prof. W. A. Neilson, of Harvard University.) table.) 6s. net.
of the English Poets." By Howard Maynadier. ix+) 6s. net.

La Chanson de Roland. Adapted by H. Rieu. 96 pp. (Methuen.) 1s.—This is another volume of "Methuen's Simplified Texts," several of which we have reviewed. Mr. Rieu has retold the famous story well. The vocabulary seems to be complete.

N N

BOOKS OF TRAVEL AS AN AID TO THE TEACHING OF GEOGRAPHY.

By F. D. HERBERTSON, B.A. (Lond.).

NOTHING is more difficult than to suggest a selection of books of travel as supplementary to the ordinary text-book. The writer is, indeed, very doubtful if much is gained by using them in this way. From a geographical point of view few books of travel are very satisfactory, for, as Dr. H. R. Mill long ago pointed out, few travellers have been geographers. Ball, Bates, Belt, Darwin, Hooker, Humboldt, Livingstone, and Wallace are among the illustrious exceptions to this rule. The ordinary traveller, unfortunately, sees but little, and that little unessential. Moreover, books of travel are hardly published before they are out of date, so far as economic conditions are concerned, more especially those dealing with the new lands of the world.

The list below attempts to suggest a few of the more useful books for each continent. It is needless to say that it might be almost indefinitely extended, and that many excellent books are omitted. Several of the older travellers are included for their excellent descriptions of the permanent geographical conditions. These are denoted by the sign †. The later books are frequently valuable for their illustrations.

Far more useful, generally speaking, than books of travel are the articles published in the various geographical journals. A list of the most important of these and of the best books of travel, with critical notes, forms one of the chapters of the indispensable "Hints to Teachers on the Choice of Books," to be published almost immediately for the Geographical Association. For fuller information teachers are referred to these sources.

EUROPE.

Austria-Hungary.

Ansted, Prof. D. J. "A Short Trip in Hungary and Transylvania." (W. H. Allen.)
Asboth, J. de. "Official Tour through Bosnia." (Sonnenschein.)
Kohl, J. G. "Austria." (Chapman and Hall.)
Grohmann, W. A. "The Land in the Mountains." (Simpkin, 1907.) 12*s.* 6*d.* net.
Munro, R. "Rambles and Studies in Bosnia, Herzegovina, and Dalmatia." (Blackwood.)
Palmer, F. H. E. "Austrian Life in Town and Country." (Newnes.) 3*s.* 6*d.*

Balkan States, Turkey, and Greece.

"Bulgaria of To-day." Official Publication of the Bulgarian Ministry of Commerce and Agriculture, 1907. Free.
Durham, M. E. "Through the Lands of the Serb." (Arnold, 1904.) 14*s.* net.
Fraser, J. F. "Pictures from the Balkans." (Cassell, 1906.) 6*s.*
Garnett, L. "Turkish Life in Town and Country." (Newnes.) 3*s.* 6*d.*
Lavaleye, E. de. "The Balkan Peninsula." English translation. (Fisher Unwin, 1887.) 16*s.*
Lear, E. "Journals of a Landscape Painter in (Bentley.)
Menzies, S. "Turkey Old and New." (W. H.
Mahaffy, J. P. "Rambles and Studies in Greece. millan.) 5*s.* net.
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Odysseus (Sir C. Eliot). "Turkey in Europe." 1900.)
Samuelson, J. "Rumania." (Kegan Paul, 1888.)
Vivian, H. "Servia." (Longmans.)

Denmark, Sweden, Norway, Iceland.

Bisiker, W. "Across Iceland." (Arnold, 1902.)
Bröchner, J. "Danish Life in Town and C (Newnes.) 3*s.* 6*d.*
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Forrester, G. "Rambles in Norway." (Lc 1855.)
Hansen, Prof. "Norway." Official Publication Paris Exhibition.
Heidenstam, O. G. "Swedish Life in Town an try." (Newnes.) 3*s.* 6*d.*
"Sweden." Official Handbook published for t Exhibition.

France.

Baring-Gould, S. "Deserts of Southern (Methuen, 1894.) 32*s.*
"Book of the Cevennes." (Long, 1907.) 6*s.*
Betham-Edwards, M. E. "A Year in Western (Longmans.)
"France of To-day." (Percival.)
"Holidays in Eastern France." (Hurst and Bl
Hugo, V. "Alpes et Pyrénées." English tra (Sands.)
Lynch. "French Life in Town and Country." (3*s.* 6*d.*
Marcel, E. A. "Les Cevennes et la Région des C (Paris: Delegrave.)
Reclus, O. "La France et ses Colonies." (Ha
Taine, H. "Garnets de Voyage." (Paris.)

Germany, Holland, and Belgium.

Baring-Gould, S. "Germany." (Sampson Low.
Blackburn, H. "The Harz Mountains." (Samp
Boulger, D. "Belgian Life in Town and (Newnes.) 3*s.* 6*d.*
Dawson, W. H. "German Life in Town and (Newnes.) 3*s.* 6*d.*
Hough, P. M. "Dutch Life in Town and (Newnes.) 3*s.* 6*d.*
Macdonnell, A. A. "Camping Voyages in Waters." (Stanford, 1889.) 10*s.* 6*d.*
Mahaffy, J. F., and Rogers, J. E. "Sketches Tour through Holland and Germany." (M 1889.) 10*s.* 6*d.*

Italy.

Deecke, Prof. W. "Italy." (Sonnenschein, 1904
Gauthier, Théophile. "Voyage en Italie."
Hare, A. J. C. "Venice." (Allen.)
"Walks in Rome." (Allen, 1892.)
Howells, W. D. "Tuscan Cities." (Edinburgh: D
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" Through Portugal." (Grant Richards, et.

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. " Russian Life in Town and Country." 06.) 3*s.* 6*d.*

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" Russia." 2 vols. (Cassell, 1905.) 24*s.*

' Finland as it is." (Murray, 1901.) 9*s.*

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ndbook for Travellers in Spain." First ırray, 1845.)

ı Northern Spain." (Black, 1897.)

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Switzerland.

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ıountaineering books.

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vpt, the Nile, and Abyssinia.

" Nile Tributaries of Abyssinia." (Mac-) 6*s.*

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'ravels in Africa." 2 vols. (Ward and va Library.)

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:co." (Chatto and Windus, 1905.) 12*s.* 6*d.*

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Sturt, Capt. C. "Narrative of an Expedition int Australia." (Boone, 1839.)
"Two Expeditions into the Interior of Southern land during the Years 1829, 1830, 1831." Elder, 1833.)
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W. C. "Picturesque America." 4 vols. ill.) £8 8*s.*

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Wild North Land." (Sampson Low, 1874.)
A. G. "Canada in the Twentieth Century." table, 1905.) 16*s.*
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ynam P. (editor). "Historic Towns of the States." (Putnam, 1899.)
of. N. S. (editor). "United States of America." (Sampson Low.) 36*s.*
G. W. "The Land of the Dollar." (Black- 6*s.*

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hman, W. A. "Camps in the Rockies." , 1882.) 12*s.* 6*d.* net.
abella. "A Lady's Life in the Rocky Moun- (Murray, 1879.)
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Clark. "History of the Expedition under the and of Captains Lewis and Clark to the Sources Missouri, thence across the Rocky Mountains wn the River Columbia to the Pacific Ocean." dition. 3 vols. (Nutt, 1905.)
Powell, J. W. "Cañons of the Colorado." (Meadville, Pa.: Flood and Vincent, 1895.)
"Report on the Lands of the Arid Regions of the United States." (Washington Government Publication Office, 1879.)
Seton-Karr, H. W. "Shores and Alps of Alaska." (Sampson Low.) 16*s.*

Mexico.

†Humboldt, A. von. "Selections from the Works of Humboldt relating to Mexico." (Longmans, 1828.)
Martin, P. F. "Mexico of the Twentieth Century." 2 vols. (Arnold, 1907.) 36*s.* net.

CENTRAL AMERICA AND THE WEST INDIES.

Bell, C. N. "Tangweera." (Arnold, 1899.) 16*s.*
Boddam-Whetham, J. W. "Across Central America." (Hurst and Blackett.)
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Prichard, H. "Where Black Rules White." (Constable, 1900.)
Vincent, F. "In and Out of Central America." (Appleton, 1890.) 6*s.*

SOUTH AMERICA.

Andre, E. "A Naturalist in the Guianas." (Smith, Elder, 1904.) 14*s.*
†Ball, J. "Notes of a Naturalist in South America." (Kegan Paul, 1887.) 8*s.* 6*d.*
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Boddam-Whetham, J. W. "Roraima, and British Guiana." (Hurst and Blackett, 1879.)
Bourgade la Dardye, E. de. "Paraguay." (Philip, 1892.) 7*s.* 6*d.*
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Child, T. "In the Spanish-American Republics." (Harper, 1892.) 20*s.*
Conway, Sir W. M. "The Bolivian Andes." (Harper, 1901.) 12*s.* 6*d.*
†Darwin, C. "Voyage of the *Beagle*." (Ward and Lock.) 2*s.*
Enock, Reginald. "The Andes and the Amazon: Life and Travel in Peru." (Fisher Unwin, 1907.) 21*s.*
Fitzgerald, A. B. "The Highest Andes." (Methuen, 1899.)
Ford, J. N. "Tropical America." (Stanford, 1893.) 10*s.* 6*d.*
†Head, Sir F. B. "Rough Notes taken during some Rapid Journeys across the Pampas and among the Andes." (Murray, 1828.)
Hudson, W. H. "The Naturalist in La Plata." (Chapman and Hall, 1892.) 16*s.*
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†Humboldt, A. von. "Travels to the Equinoctial Regions of the New Continent from 1799 to 1804." 3 vols. (Bohn.) 10*s.* 6*d.*
Knight, E. F. "The Cruise of the *Falcon*." (Sampson Low.) 2*s.* 6*d.*
Koebel, W. H. "Modern Argentina." (Griffiths, 1907.) 10*s.* 6*d.*
Markham, Sir C. R. "Peru." (Sampson Low, 1880.)

Martin, P. F. "Through Five Republics of South America." (Heinemann, 1905.) 21s.
Prichard, H. "Through the Heart of Patagonia." (Heinemann, 1902.) 21s. net.
Rodway, J. "In the Guiana Forest." (Fisher Unwin, 1895.) 7s. 6d.
Schomburgk, Sir R. "British Guiana." (Simpkin, 1840.)
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Scruggs, W. L. "The Columbian and Venezuelan Republics." (Sampson Low, 1901.) 12s. 6d.
Tschudi, J. J. "Travels in Peru in 1838–42." (Bogue, 1847.)
Vincent, F. "Around and about S. America." (Kegan Paul, 1890.) 21s.
Wallace, A. R. "Travels on the Amazon and Rio Negro." (Ward and Lock.) 2s.
Whymper, E. "Travels among the Great Andes of the Equator." (Murray, 1892.) 21s. net.

THE HEALTH OF SECONDARY-SCHOOL PUPILS IN LONDON.[1]

SCHOOL hygiene is being more and more recognised as a highly specialised branch of public health, which, in order that justice may be done to the children and to public interests, requires for its administration experienced and specially trained medical officers. In London great progress has been made already in the direction of securing healthy conditions in the schools, and a well-qualified corps of doctors under the leadership of Dr. James Kerr is actively engaged in further investigating the circumstances which in the schools must determine the satisfactory physical well-being of the scholars.

The recently published report teems with interesting data, and should afford comfort to those educational pessimists who allege that the energy of the officials who administer education in London is almost wholly dissipated in the compilation of useless statistics and in securing a mechanical adherence on the part of the teachers to a rigid system enforced from headquarters. The report provides overwhelming evidence that a scientifically planned survey of the physical condition of the present pupils is being carried out, and that carefully organised experiments are in progress designed to determine the best means of securing satisfactory ventilation and lighting of class-rooms, of avoiding unnecessary mental fatigue, and of adapting school curricula to special needs. The report may, in fact, be commended heartily to the attention of educational administrators and schoolmasters for the professional assistance it renders, and to the social reformer and householder as providing a valuable indication of some of the good accomplished by education rates.

So numerous are the subjects of interest dealt with by Dr. Kerr, that it is possible here to refer only to a few typical inquiries which are being instituted.

MEDICAL INSPECTION OF SECONDARY SCHOOLS.

In April, 1906, it was decided that arrangements should be made for periodical medical examination of pupils in the Council's secondary schools. The medical superintendence of the schools, hygiene of buildings and general matters, is done by the permanent office staff. As the majority of the pupils are girls in their 'teens, the individual handling of these girls is done by medical women, except in special cases where they desire further t tion. Each pupil is separately examined on ente school, and a regular medical report form filled adds considerably to the working capacity of th especially in the case of girls, and prevents illness can have access to lay any matters which the before the medical officer. A regular consultatio therefore arranged about once in six weeks, w pupil may see the doctor in regard to any trouble her work, such as headache, neuralgia, sor sleeplessness, or over-fatigue, which would generally be allowed to run on unrelieved. Th were present in many cases, and appreciated th examination of their children. Headmistresses unanimous in regard to the fundamental impo this work in these schools where the physical co the children is considerably below the type of h girl, to which most of them have been accustom feel the great help of medical examinations. T altered time-tables, arranged special classes, individual arrangements to suit particular pupils to the doctor's advice.

Since September, 1906, Dr. Annie Gowdey Campbell have been engaged on the inspection o in the secondary schools and training colleges, s girls passing through their hands. In the schools, about 15 per cent. were below the aver tion and 24 per cent. anæmic. Headaches plained of by 20·5 per cent., in many cases witho cause; but in others anæmia, defective vision troubles, and reading late at night were freque Exaggerated movements, corrugated foreheads, and somnambulism were met with. Several cas strain were specially reported. Similar condit found in the training colleges, but the standard cleanliness, although not always quite satisfacto course, much higher, and the use of the toothb understood. The most striking fact brought medical inspection seems to be ignorance of th elementary rules of health. A course of hyg take a leading and prominent position in the s average standard of physique is low. The n a frequent bath, that a daily wash should en than the face and hands, and that the same un should not be worn during the day and night, be frequently insisted on.

DENTAL CONDITIONS.

The secondary schools and training colleges conditions among their pupils which, considerin and status, are no better than the conditions and offensiveness found in the elementary 134 boys examined at Paddington Technical at Hackney Downs, 62 per cent. had two or ing teeth. In many cases there were spongy two had suppurating conditions. Among the n at Offord Road neglect of the mouth was g several cases had suppurating conditions, the some being almost as offensive as ozœna. girls of the secondary schools, for æsthetic r conditions are somewhat better, but one-thir improvement. Some never used a tooth-brush, a month, or once a week, and so on, and fe to realise the importance of the hygiene of In the training colleges, although 43 per ce turned with dental defects, the use of the toot attention to oral hygiene is much better, althou yet great room for improvement. Hitherto the mere examinations without treatment in denta

[1] Report of the Education Committee of the London County Council submitting the Report of the Medical Officer (Education) for the Year *ended March 31st, 1907.* 66 pp. (King.) 1s.

the employment of school dentists scarcely a matter ctical politics. The experience of the last three or ears in Germany has, however, altered this. Prof. , of Strassburg, from his dental work in connection he army, was led to turn his attention to preventa- easures among the school children. He has worked scheme for school dental care which was taken up municipality, and is now being adopted as the throughout central Europe. During a recent visit asburg this work was shown and demonstrated, e work conducted on somewhat similar lines in other was also seen and inquired into.

Fatigue.

igue is nature's danger signal to prevent excessive and tear. It is almost certainly due to toxic action, finite chemical products, accumulating locally and becoming generalised in the blood. Recent experi- rs have asserted what Erlich's theories would st, namely, the power of preparing antitoxin which s fatigue. The normal course of work indicates some such changes happen. There is a conscious- of working more effectively, so far as mental work cerned, in the second or third hour of work than in rst. Partly for this reason and partly because it is tural way of development noticed in young animals, ave always maintained that the most educational of any exercise for growing structures is in short, violent bursts, with relapses to comparative quiet. physical exercise of infants during evolution of their acquirements should tend to forms explosive in e and duration. A healthy organism will not suffer ch exercise. Running, jumping, and simple, short ge movements are not only judicious in the infant ment, but it is an educational crime to withhold Play can become a labour, and organised games weariness, just as drills or exercises may be done ly or carefully that they are a source of serious tion and fatigue. It is therefore wrong not to physical exercises of a simple nature and plenty of in the infants' schools, but the teachers must learn ow almost instinctively what to avoid and what is

ly fatigue symptoms, quickened heart action and ation, with flushed face and sharpened mental y, are the very results wanted by our scheme of ses. But many out-of-school exercises, especially ning lessons and contests, are more exacting, because ation is impeded, and these sometimes become most sting exercises, breathlessness being especially notice- among the young girls. In contests between older particularly if of different racial stocks, there may ficulties if they are matched age for age. The cies of development at each age must be respected. the proper time the particular educational tendency lected, then the education is incomplete and defective ne respects. The tendency of the girls to nurse dolls the boys to play soldiers is absolutely natural. The to exhibit these normal tastes may be held to e mental defect, and often that defect is elusive ng shown only by perverted moral traits.

Effect of Ventilation on School Fatigue.

e reporting in 1904 on experiments on the need for ation of certain class-rooms, chiefly shown by deter- ions of the deterioration of air by the carbonic acid resent, attention has been directed to the almost icable subjective feelings of languor and fatigue noticed in many mechanically as well as naturally ventilated schools. Some mechanically ventilated schools are almost museums of mistakes; most in London are failures from want of appreciation of the problems to be treated, but the failures are purely in matters of engineering. It only seems to be in schools with warmed air, where the air supply runs up to about 2,000 cubic feet per head per hour, that freedom from the easily induced exhaustion is found. Although every schoolroom should be mechanically ventilated, yet the necessary arrangements with low-pressure fans, otherwise desirable for school purposes, seem in London to be almost out of the question owing to cost in space and material.

From Dr. Haldane's observations, the actual amount of respiratory carbon dioxide appears to have little to do with the production of unpleasant symptoms, and no evidence can be obtained of the existence of the *anthropotoxin* previously generally supposed to exist. He favours the idea that temperature and humidity, by interfering with the loss of heat from the body surface, disturb metabolism and induce unpleasant or even dangerous symptoms. These observations have been independently confirmed by various workers in the laboratories of Prof. Flügge at Breslau.

It has therefore been attempted to supplement the previous observations on school air in London by observations on fatigue, and also on the relation of the atmosphere to the working capacity of the children.

Although many gaps remain to be filled ere these observations constitute a complete series, the following conclusions seem indicated:

(i) Mental alertness and accuracy are improved by two or three hours of school work, provided that the atmosphere is satisfactory.

(ii) Temperatures above 65° F. give rise to definite subjective symptoms—slackness and inattention in some, headaches in others—although it is not easy to assert definite mental alteration until about 70° F.

(iii) Symptoms do not appear at 65° if the air is kept in gentle movement by a fan in the room. At higher temperatures the symptoms and mental conditions are ameliorated by such movement of the air.

(iv) With temperatures 70° F. and above, other factors being normal, there are marked symptoms and very evident deterioration in mental alertness and accuracy.

(v) Relative humidity does not affect the mental capacity of children at low temperatures. Increase of humidity appears to increase the effects of high temperature.

(vi) Carbonic acid gas in considerable excess, although not producing the symptoms found in a hot and close atmosphere, seems to produce, after a time, considerable fatigue in the performance of mental functions by the children.

A First Year's Course in Geometry and Physics. Parts i.–iii. By Ernest Young. 169 pp. (Bell.) 2*s.* 6*d.* Parts i.–ii., separately, 1*s.* 6*d.*; part iii. only, 1*s.*—This work is intended for use in secondary schools working under the Board of Education regulations. Part i. furnishes a combined course in geometry and physics; part ii. contains the second and third terms' work in geometry; and part iii. contains the work in physics for the same terms. It is assumed that, in each week, 1½ hours shall be devoted to geometry and 2½ hours to physics, 1½ hours of the latter period being spent in the laboratory. This volume will prove of much service in any secondary school, and it has evidently been prepared by an experienced teacher.

NATURE-STUDY IN SECONDARY SCHOOLS.[1]

By J. S. DAVIS, M.A.
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NATURE-STUDY is, unfortunately, regarded by some as a new subject—something additional introduced into an already crowded curriculum. It is by no means new—Bacon wrote of it, and it received the approval of Milton. It has no end—it knows no boundaries—it is merely a more efficient means of imparting general knowledge.

Almost any text-book will show that we begin to teach science at the wrong end. Consider how the student is taught the properties of light—how by experiment with the electric spark he is shown that the violet rays are the most refrangible and the red rays the least. It may be years afterwards that he sees some experiment which gives, for the first time, a real meaning to these words. Now read Edgeworth's "Practical Education." A boy of nine finds a kind of rainbow on the floor. He calls his sister to see, and wonders how it came there. The sun shines brightly through the window. The boy moves several things in the room, but it makes no change. At last, when he moves a tumbler of water, the rainbow disappears. There are some violets in the tumbler, which he thinks may explain the colours on the floor. But when the violets are removed the colours remain. Then he thinks it may be the water. He empties the glass. The colours remain, but they are fainter. This leads him to suppose that the water and the glass together make the rainbow. "But," says he, "there is no glass in the sky, yet there is a rainbow, so that I think the water alone would do if we could but hold it together without the glass." He then pours the water slowly out of the glass into a basin, which he places in the sunlight, and sees the colours on the floor twinkling behind the water as it falls.

I have introduced this story to illustrate the way in which one should proceed in nature-study. In this case we see that the boy had been trained to observe and to think and to inquire; and nature-study is a training in observation, in thinking, and in inquiry. The most serious fault of the teacher of to-day is that he is an extinguisher of curiosity. We all deaden our pupils' curiosity—we tell them too much—we do too much for them. Under the lists of bays and capes, of kings and queens, of chemical compounds, &c., we stifle curiosity. We tell our pupils such a lot, hoping that some small percentage may stick in their memory. What we do not foster is the thirst for knowledge—the habit of inquiry. As with Thomas Arnold, so it should be with us—it should be our chief business not so much to impart knowledge as to give our pupils an appetite for knowledge. By the introduction of nature-study the area of instruction is not necessarily extended, but it enables us more thoroughly to till the ground which is already in our possession, but not always effectively cultivated. We learn what we are at the time eager to know. We learn by doing, and get no result for which we have not worked.

What is nature-study? To define it would be harmful, for definition involves limitation, and to limit such a study would be to hinder its development. By attending to nature-study we do not despise the study of books, but rather the former is an introduction to the latter. The *term* nature-study has reference to the materials considered and to the methods adopted. It aptly ex the spirit in which the work should be carried out. materials are found in nature, and the methods a methods of nature.

In the first place, nature-study is "nature"-stu is the study of our surroundings. We hear a lot of the all-importance of environment. If this be then we should make the best use of this factor. N study is not merely listening to a teacher talking nature, or listening to one who tells what he has r seen, or studying books about nature; all these hav advantages—they all help us. But this is not study. Essentially, Nature is out-of-doors, and to her we must go out-of-doors into Nature's great tory.

Secondly, it is nature-"study." It is not talk reading about nature, it is not glancing at the b of nature, but it is an organised study of nature teacher with the taught.

The advantages of nature-study are as numer they are great. There is scarcely a single subject struction into which nature-study does not enter: be correlated with so many subjects—with geo modelling, woodwork, and drawing. Of cours correlation must not be carried to excess, or w arrive at a state of affairs such as this: it was su that by such a correlation you would one day have on the bee, then you would sing about the bee, the about the bee, then read about the bee, then dr bee, then paint the bee, and by the end of the w would be sick of the bee. Do not do this, but so matters that each subject in its turn is made the of many others which are grouped around it, and means the pupils learn to see the relation which between various natural objects.

But for a moment consider the relations of natu to art, to music, poetry, literature, philosophy—na to theology; for who can study the growth even much despised wayside dandelion and not recogr reverence there the workings of the Hand of G Tennyson has it:

> "Flower in the crannied wall,
> I pluck you out of the crannies,
> I hold you here, root and all, in my han
> Little flower—but if I could understand
> What you are, root and all, and all in all
> I should know what God and man is."

Nature-study has a great power of interest—it on through nature to nature's God.

Now I contend that nature-study should be th tion subject of every school curriculum. In place, it is the subject most interesting to youn They are, for the most part, naturally interested i and plant life. Do, then, let us follow their lead them the best conditions for nature-study.

Secondly, there is one Cause of everything, an is the work of His fingers. Thus, then, in all thin must be an underlying unity. Nature-study helps t to adjust more clearly his relation to God, to n and to Nature herself.

Thirdly, by means of nature-study the pupil lea reverence for life which, alas! is often so sadly in child nature. He learns sympathy for the forms of life—nature-study has such a refining in It widens and deepens the outlook of the student, makes that outlook brighter and fuller, for it enab to see things in a true perspective—it gives him

[1] A paper read at a meeting of the Headmasters' Association, Division V. (Berks, Bucks, and Oxon).

eye, the hearing ear, and the understanding heart. pupil is made to realise with Wordsworth that he is—

" well pleased to recognise
In Nature and the language of the sense
The anchor of my purer thoughts, the nurse,
The guide and guardian of my heart, and soul
Of all my moral being."

ere are many aims of nature-study, but perhaps the important should be to awaken interest in one's undings, to cultivate the higher nature, æsthetical, al, and spiritual, and to develop the intellectual rs. Our aims in schools should be to promote in- ual work and the student's love for the subject. The nt must be taught to work as an individual as well member of society. He must be trained in the habit verence and love for things of nature, for man, and God. He must have the habit of exact observation, ght, and reflection.

far I have tried to point out the advantages of an ised study of nature—advantages common to all— er during school life or after school days are over. I come to the more practical part of my paper, viz., in secondary schools a proper and useful study of e may be organised.

the first place, we must have a scheme. I think all agree to that, although as to the rigidity and elas- of that scheme people will differ. Now I have known me schools schemes drawn up and rigidly adhered to, matter what be the circumstances. The teacher had is mind a set plan which he tenaciously held to, and d not be turned from it by wind or rain, snowstorm unshine. Do not do this—draw up a *general* season me; but woe be to that rash individual who dares to a date to nature's productions—disappointment only ts him.

en, again, some head-teachers draw up a scheme of e-study for their teachers, who have to follow that e closely. This leaves no room for the individual r to use his own brains for his own class—it destroys duality—it limits the study where no limitation should This may be a good plan in the case of a young r who has had no experience; but even here I doubt lvisability of it; for I maintain that the best teacher ure-study—the one who can best awaken enthusiasm class—is the teacher who learns nature-study with ass, who is, as it were, a discoverer on the same s his pupils.

ink the best plan is to let each teacher have a sug- e scheme of work—a kind of general guide—but let elect and elaborate according to the needs of his If the class-teacher does this, he has a clear and e idea of the subject in his mind and the way in he intends to treat it, and the side-lights he intends g to bear upon it. Surely by this means the teacher more confidence, and the pupils reap a greater age.

, not only must we have a scheme, but it must be d one—one which is workable; and there are two ssentials of a good scheme:

he first place, the scheme must provide work, and al with which to work, on a line with a pupil's state of development. It is of the highest import- o graduate both work and material so that it shall roughly suitable to the state of development of the n question.

ndly, the scheme must be in harmony with the surroundings—the work must be suited to the environment; and this brings me to the scheme itself. I have heard it said—I have had it said to me—" Ah! yes, it is all very well for you with your college in the heart of the country; but what can one do in the heart of a large town—shut in on all sides by chimney-stacks?" But the beauty of nature-study is that it knows no limitation—it goes on for ever in city, town, and country. For example, if your school is in a seaport town, then make the students interested in all that pertains to a seaport—let them study the locks, seashore, fish, tides, waves, &c. If your school is in the country, then your work is light indeed. It is the easiest task possible there to infuse into the pupils a love of nature—there to follow nature and nature's ways in almost every direction. In the country Nature has surrounded us with her beauties—she has scattered her treasures lavishly in field and wood and hedgerow. Surely, then, we have ample material for nature-study and ample opportunity, and consequently it becomes to a greater degree our duty to study nature systematically. But in the country there is a great temptation merely to collect. Now making a collection has some value, but unless carefully watched this will make nature-study very superficial—nothing will be assimilated—and every day natural history is becoming more and more choked with unassimilated facts. Train the nature-student to work, and to think upon what he works.

But if your school is in the heart of a crowded city your task is more difficult—nevertheless, it is far from impossible. Nature-study can go on there just as freely as in the country; it is nature-study of a different type, but it is still nature-study. In this case a scheme may be drawn up by which the pupils shall study field botany in a public park or by means of flowers and plants grown in the school buildings or school garden. Plant life, animal life, and atmospheric phenomena may very profitably be studied. Even in the elementary school, where the intelligence is not of so high an order as in the secondary school, much useful work has been and is being done in the direction of nature-study, even in the busiest towns. There are, alas! only too many of us who have long outgrown our childish joy in the all-wonderful world around us. We should be, not only observers of nature, but sharers in its pure joy; as with Wordsworth:

" Nature never did betray
The heart that loved her: 'tis her privilege
Through all the years of this our life, to lead
From joy to joy."

It would be impossible for me, here in this short paper, to give suggestive schemes suitable to the varying needs of various schools. I have merely shown that wherever the school may be situated—whatever be its circumstances—there nature-study can and should be taught. In a school this work should be both incidental and systematic. By incidental, I mean that no time is allotted to it upon the time-table—for much of a pupil's interest in nature is spontaneous, and this should in every way be encouraged. For the systematic work in nature-study, perhaps the best time upon the time-table is at the end of the morning or afternoon, after some fatiguing lessons. If you cannot set apart a separate time for it, then perhaps you could work it into the other lessons of the week. Doubtless many will consider that much of what I have said is more applicable to the elementary school, where one deals with younger children. That may be so, but I venture to say that a great deal can be applied to the secondary schools—for in the matter of nature-study we are all children, and in the case of schools where nature-study

has not yet been taken up, we cannot begin too simply. However, I will now say a few words suitable to those of riper years. I cannot do better than outline a scheme of my own, which I have for several years followed with no small success, and that with young men all more than eighteen years of age. My object has been to find out how far their powers of observation have been developed, and to train them to use their eyes properly—that is, I have made the nature-study work as heuristic as possible. For the first ramble I send them out singly—note-book in hand—in a certain direction for a certain time, and when they return they are to show me by their notes, specimens, and conversation what of interest they have seen. If I find any one student has not seen much, then I have my material to work upon—I have to show him how to see—I have more or less to direct his observations. If he has seen much, doubtless I find that he is more interested in one branch of natural history than in another, and so I let him, to a certain extent, specialise. For the second ramble I send them out in twos or threes, having made no preparation, but hoping they will show an improvement and make use of my little previous talk to them.

For the third ramble I take out the students in parties of ten or a dozen, and think aloud. This may seem a strange expression, but I will explain myself. I previously take a short walk (always short, for to take a nature-study ramble it is not necessary to travel miles—a few yards will often suffice), and take note of things likely to be of use to me. Then the students follow me—each has his note-book—he does not speak to me, neither do I speak to him; but I go along slowly, just as if I were alone, noticing things and thinking about them, reasoning and classifying—only I do it aloud. The students take note of what I notice, they see the way in which I attack the ramble, and see what use I make of my observations. When I return I put together all I have noted, and try to set my observations in some useful order. Then I discuss the ramble with the students. Now this may sound difficult, and I admit that it is difficult, but it is possible; and of the value of it I have no doubt. If anyone has not previously seen, he now sees, and sees more intelligently. For the fourth ramble I send them out in small parties in different directions, and the results of this ramble are generally very gratifying. On the fifth occasion I again take them out in parties, and direct their observations; this time I talk to them and they to me—in fact, we all learn together. I take them in a certain direction for a special object—it may be to study the structure and growth of various trees, or the flowers of the hedge, or the work and flow of a river, or the geology of the surrounding district. For the sixth and successive rambles I send the students out with special objects in view.

By this time all, or nearly all, will have shown a special liking for one branch of the study, and will have decided, under the guidance and with the sanction of the teacher, to follow out as far as possible research work (for such it really is) in one or more departments of natural history. All that remains for the teacher to do now is to direct the pupil's work—to help him in his difficulties and to suggest experiments which he might profitably carry out. It will be well now and again to send out each pupil for quite a general ramble, to prevent him from working in a groove. I feel sure that if the subject has been presented to the pupil in the proper way, there will be little for the teacher to do—enthusiasm will do the rest.

If you cannot spare time on the time-table for nature-study, then do as I have done—work it side by side with practical science. This can very easily be done if you have a large class for experimental science—ke in for science and send some out for nature-stud time change round. Keep a register of what each done, and you will find that in this way much go will be done, both in science and nature-study.

I have said that enthusiasm will do most of t for you. This is true, but sometimes *stimuli* ar sary. A few of these I will very briefly mention. have a school garden make use of it—let the pupi the soil, the use of manures, the rotation of cr Do some indoor work, watch the growth of plant study the germination of seeds, and such like. A calendar will be found very useful. It may be a calendar showing the flowers, birds, &c., which ar to be found at certain times; but, better still, it simply a chart filled up day by day with the obse of the pupils. It may contain the name of a first ance, showing where it was found, by whom fou giving any remark which may be considered us healthy rivalry will be set up—a rivalry which found of great value even in the case of young me

An aquarium may be set up at very little cost. be looked after by two or three chosen pupils. T development of fish, frogs, &c., may be daily Similarly, a vivarium may be established, in whi specimens of flowers are kept. At the school kee gauge, a maximum and minimum thermometer, and dry-bulb thermometer, and let the pupils ma daily observations and "plot" curves to sh variations.

Again, hold annually an exhibition of nature-stu I have tried this and found it a great success. sections are formed, and each student enters for more sections. Entries for this exhibition should some long time previous, so as to ensure its t presentative of, say, a year's work; otherwise develop into a show of things just got up for the Each exhibit must represent systematic work. T only a few of the many ways in which nature-st be encouraged—others will occur to the teach proceeds.

I cannot conclude this paper without mentio dangers which may be encountered. In the fi there is the danger of working in a groove: th goes through the same course term after term, constantly go over the same ramble, with the r the teacher and taught soon learn a long list but little about nature. Secondly, there is the the exclusive use of superficial observations, disastrous. Observations are of very little val some real use is to be made of them.

I will conclude by quoting a golden rule: T the pupils anything which they can find out selves. Let them learn by doing. When natur taught from the book it becomes worthless a study, even though interesting information is Let it be our aim, not to train botanists or or zoologists, but to train men and women to l thoughtful, accurate, and sympathetic. Let us that love of nature which has been the inspiration of our literature and art, and let us always remei we must be nature-students before we can b teachers. If we can arouse the enthusiasm of better appreciation of the works of nature, we s accomplished a great deal; for surely the stud facts of nature is a discipline which cannot fail t those mental powers which all lovers of educatio strive to cultivate and strengthen.

ORY AND CURRENT EVENTS.

teenth century saw in England, as in Europe cessation of interest in matters ecclesiastical. s concerned then either with dynastic struggles mmercial and colonial rivalries. The conse- that Europeans in general, and Englishmen in orgot the ideals of the seventeenth and previous r regarded them as antiquated. It was then, that the various branches of the Christian ablished or unestablished, became "tolerant" ther, a tolerance which arose largely from in- o the old questions of controversy. Among s that were then forgotten was the fact that all Churches was, or at least had been, to be nt of men, that is, to be a State. The Papacy urches which regarded that institution as neces- Christian Church had forgotten it least, and in religious matters awoke in England with Evangelical revival" and afterwards with the iovement," we here came to realise, at least iat still, as of old, the Church is a State. It penalties, revenues, armies. It is aggressive lisciplines its subjects at home.

this reason—that the Church (however con- ssentially a State—that we do not consider it his column to remark on some phenomena that ed the attention of Englishmen during the year wing to a close. When, in 1886, an Act of extended the legal hours of marriage in this m 10 a.m. to 3 p.m., it was found that the Church was thus different from that of the lay , since the matter was ecclesiastically un- there was no difficulty in the Convocations r to bring the two once more into conformity. ar the lay State has again changed the law of and the consequence is a controversy, partly in character. Between the various authorities spoken, it is not for us to decide. Whether law of the Church of England separate from State, whether, if so, it should or should not and, if not, what the legal results will be, are most discussed. We are reminded of the time State had no law on marriage, when the whole as left entirely to the Church, so that in a t for a decree of nullity of marriage the King sought such a decree from the Pope.

he Churches of the Roman obedience, too, there tly been developments which can only be under- we remember the State nature of the Christian n 1870, when the dogma of Papal Infallibility l and made a matter of faith, there were some not accept the dogma, and were therefore ex- i the Church as rebels. They form the "Old party, and, since their original leaders have l, do not seem to be of great importance. And seems to be another movement within the hurch. Conflict has arisen between old and new thought. The head of the Church has decided , and those who will not obey the constitutionally are regarded as rebels. Excommunication has i employed. The rebels are outlawed, as we in lay matters. So began the conflict with o began the conflict with Döllinger.

arliament of man, the federation of the world," nd dispersed. Do the "war drums throb no Are the "battle flags furled"? Or are there still "wars and rumours of wars," while "the end is not yet"? There have been many such disappointments. Dante in 1310 expected that Henry of Luxemburg, the Emperor Henry VII., would restore the Roman Empire to its former greatness and bring about the millennium. But the Empire for which he hoped was destined to sink still further, not to rise again. Dante's great enemy, Boniface VIII., had issued the Bull *Clericis Laicos* in 1296 to prevent, if possible, wars between Christian princes, at least at the cost of Church revenues. But Edward of England outlawed the clergy in reply, and Philip of France did worse. General Councils in the fifteenth century might end the Schism, but they could not reform the Church "in head and members," and the mediæval Church went on to the catastrophe of the sixteenth century. Since that time States have become more separatist, and in the nineteenth century came to base themselves on nationality, a principle which does not tend to mutual love.

ITEMS OF INTEREST.

GENERAL.

SIR ARTHUR RÜCKER, principal of the University of London, will resign next September the position he has occupied for seven years with such conspicuous success. The following resolution has been unanimously adopted by the Senate of the University: "That the Senate have received with sincere regret the announcement by Sir Arthur Rücker that he wishes to relinquish office on September 30th, 1908, and record their appreciation of the great services he has loyally rendered to the University as principal since its reconstitution."

THE North of England Education Conference of January next is to be held at Sheffield. There will be two united morning conferences on January 3rd and 4th. At the first the subject will be the functions of a modern university, and it will be introduced by Prof. W. M. Hicks, F.R.S., Mr. J. H. Hichens, and Mr. A. Mansbridge; at the second the discussion will be on the mode of preparation of the primary teacher before entering the training college, and papers will be read by Miss Byles, Mr. A. J. Arnold, and Prof. Mark R. Wright. There will be four sectional meetings in the afternoon of January 3rd: (i) Medical inspection and treatment of school children in primary and secondary schools; papers by Drs. Clement Dukes and R. H. Crowley. (ii) The teaching of history; papers by Mr. H. J. Snape and the Rev. Prof. G. H. Godwin, of the University of Durham. (iii) Holiday and open-air schools; papers by Messrs. C. H. Wyatt and Ernest Gray. (iv) Compulsory attendance at evening schools; papers by Messrs. J. Crowther and J. H. Reynolds. Three sectional meetings will be held in the afternoon of January 4th: (i) Treatment of physically and mentally defective children and their after-care; papers by Miss M. Dendy and Dr. T. H. Openshaw. (ii) Housecraft in schools for girls; papers by Miss Maud Taylor and Miss Cleghorn. (iii) The cultivation of artistic perception in children; papers by Messrs. T. R. Ablett and J. A. Pearce. Prof. M. E. Sadler has accepted the position of president of the conference. Tickets of admission can be obtained free from the joint honorary secretaries, Education Office, Leopold Street, Sheffield.

A HOLIDAY course for foreigners will be held at the University of London in the summer of 1908, and will, as in former years, be under the direction of Prof. Walter Rippmann. The full course will last from July 20th to August 14th. The number of students must be limited if

they are to receive that individual attention which is necessary to make a stay in London profitable; students should therefore make early application, which should be written in English. Tickets will be allotted as applications are received. Distinguishing features of the course are the lectures treating of English literature, institutions, education, and art; the systematic study of English phonetics; the classes for conversation, reading, and choral singing conducted by trained teachers; and the organisation of excursions to places of interest in and around London. Students may present themselves for examination in written and oral English. The standard required for distinction is high, and a good certificate issued in connection with the London University Holiday Course is considered to be of real value in the teaching profession. Arrangements cannot be made for students who are only beginning the study of English and have no conversational knowledge of the language. Details of the lectures and classes, and forms of application for admission and for accommodation, may be obtained on or after April 1st. All communications referring to the holiday course should be addressed to the Registrar of the University Extension Board, University of London, South Kensington, London, S.W., and the words "Director of the Holiday Course" should be written in the top left corner of the envelope.

L'ENTENTE CORDIALE offers for competition among members of either sex of university colleges two scholarships of £20 each. The examination will be held on May 16th, 1908, and will be conducted by the Society of French Masters in England. The paper will consist of a passage of French to be translated into English and one of English into French, and of an essay or letter in French on a given subject. A scholarship will be awarded to the most proficient competitor of each sex, and the successful competitors will be required to attend at one of the French universities with which L'Entente Cordiale is in correspondence, either a summer course in 1908 or a regular session in 1908–9, and to undergo an examination at the close of the session should an opportunity be offered by the university authorities. Applications should be sent to M. Belfond, Broglence Villa, Melrose Terrace, West Kensington Park, W., on or before May 5th, 1908.

THE twelfth of the series of educational pamphlets being issued by the Board of Education deals with the education of the cottage and market gardener in England and Wales. In it Mr. T. S. Dymond, one of H.M. inspectors, who has special knowledge of the needs of our rural population, discusses the question so far as it concerns both the secondary and elementary schools in the country. Speaking of the rural grammar schools, Mr. Dymond says they have not done much in the past to promote rural prosperity; they have rather tended to educate their pupils out of rural industry than into it. What we need, if rural grammar schools are to afford some preparation for country pursuits, is that in *all* such schools the sciences should be taught in relation to rural surroundings. It is just as easy to teach the principles of science from examples which are familiar in the surroundings of the country school as from those which are not, while by doing so these principles are brought home to every boy because the illustrations appeal to him; and at the same time those of the boys who are to follow rural pursuits are obtaining knowledge about rural things which will be invaluable to them when they leave school.

MR. DYMOND thinks that, as a rule, practical gardening is not a suitable subject for secondary schools. What is needed is a practical course of the physiology of pl in relation to the soil. The work in the laboratory be accompanied by practical experiments in the garden. The students should unite in cultiva botanical garden, and use the vegetable garden to the school for studying different methods of proj and so on. Field experiments should be made soils and subsoils, and the character of the flora on different classes of land. The great difficulty way of introducing such work into rural secondar is, says Mr. Dymond, that the science masters ha themselves learnt what abundant illustrations science teaching the surroundings provide. The summer vacation courses at agricultural colleg means of remedying the defect is pointed out, but is said as to the desirability of rendering more the position of science master in such schools, s may be more worth while for teachers in this p make sacrifices to qualify themselves in the indicated.

THE "Practical Guide to Schools, Tutors, an tional Homes for Boys and Girls, in Great Britai the Continent," issued by Messrs. Truman and H educational agents, of Holles Street, Cavendish W., should prove of assistance to parents and oth duty it is to arrange for the education of childi their care. This comprehensive guide contains information concerning more than 1,000 scho spectuses and views of which can be obtained or tion to the agents. The guide is divided into ter according to the character and fees of the ec institutions dealt with, and each of these section divided according to locality. The particulars about the schools included in the directory are c tical and helpful character, and should assist th to form a good idea of the educational faciliti locality in which he is interested. The price of is 6*d.*, and copies may be obtained from the com

NEW instructions with regard to the treatm fectious diseases have lately been issued by th Minister of Education. Tuberculosis of the throat is now made a notifiable disease, and is made to extend to all places outside the sc infected children are likely to consort with ot phylactic measures are recommended to teachers serum treatment in case of exposure to diph daily disinfection of nose, mouth, and throat i ments. Teachers and pupils are advised to doctor in case of doubt about tuberculosis, s sputum may be examined. Instruction in matters of health is recommended to teachers history. If they pay attention to the subject s knowledge they communicate will reach the lead to co-operation between school and hom greatly to be encouraged. Circumstances alon when a school should be closed. In a day sch is often effective, but in a boarding school the be directly opposed to the expectation.

A TRUSTWORTHY coach to private students material for modern language teachers are to the interesting little French magazine entitled which is published in England on Fridays. Its Each number contains a copiously illustrated grammar, supplemented by a "missing word and, further, a series of well-chosen sentences tion into French. An English classic author

e in continuous prose, a key to which and to exercises is given either in the same or the umber. Other welcome features are the concise celebrities of literature and science, selections ch poets and philosophers, tales of travel, a vel, and helps in mastering difficulties of pro-

A translation competition takes place every l is open to all paying the annual subscription ller particulars of the magazine can be obtained R. Desouches, "Dunleary," Victoria Road, lfield.

ecently published special report on education in f Europe much praise is awarded to the Leav- ate examination in Sweden, especially for its and for the comparatively small amount of rk required. The former aspect is well illus- he choice of subjects for the essay in the mother en at the winter examination, November, 1907: bject may be chosen: (1) the persecution of ians in the Roman Empire; (2) how Rome Greece; (3) Napoleon I.'s personality; (4) the ffects of the period of liberty on the internal t of Sweden; (5) description of some Swedish historical importance; (6) the main routes of l commerce in our days; (7) leguminous our most important iron ores and their (9) what district of Sweden appeals most you?

number of the *Education Gazette*, published by ment of Public Education at Cape Town, refers l for economy in all educational work in Cape he directions in which economy is to be prac- ndicated very clearly. In the first place, the tes, it will not be possible to sanction increases salary grants, nor will grants for additional authorised unless in exceptionally urgent cases. in the establishment of new schools, it will be o limit fresh grants to cases of crying need. pupil teachers, no change will be made in ants; opportunity, however, can be taken in hen new engagements can be entered into, to ing.

d to applications for new grants for rent, ent is made that the Cape Education Depart- ontinue to decline to give any direct assistance, gh in ordinary circumstances such aid might . Where repairs are necessary, the expenditure kept down to the lowest possible figure. nder the head of "general maintenance" is be desirable. Long though this list is, it does t the cases where a lowering of expenditure ked for by the Department. Whatever the es to which this need for rigid saving is due, at economy will not be purchased at the expense y, and that the earliest opportunity will be evert to the ordinary scale of increases in laries.

to press the programme of the January con- eachers arranged by the London County Council plete. We are, however, permitted to make a announcement. The meetings will be held on d to 4th inclusive. Among the subjects to be vill be "Nature-study and the Teaching of 'Elementary and Higher Commercial Educa- anual Work in the Lower Standards," and g Experiments in Elementary Schools." Appli- cations for tickets of admittance may be made to Dr. Kimmins, Education Offices, Victoria Embankment, London, W.C.

MR. ROBERT MITCHELL, director of education at the Regent Street Polytechnic, London, has just been created a Knight of the Royal Order of the Polar Star by the King of Sweden. Such a decoration is a fitting recognition of the work done by Mr. Mitchell in the development of technical education in London. So successful has this work been, that it has frequently attracted the attention of educational authorities in foreign countries, who have sent representatives to study the system employed by Mr. Mitchell. The success attending Mr. Mitchell's work of more than a quarter of a century may be judged from the fact that at present the number of members and students is upwards of 17,000.

DR. G. R. PARKIN has issued a statement as to the operations of the Rhodes Scholarship Scheme during the year. It appears that the whole number of scholars at the beginning of the October term was 160. For the present year seventy-three scholars were elected, forty-five of whom were from the United States, eight from Canada, six from Australia, five from South Africa, five from Germany, and one each from Bermuda, Jamaica, Newfoundland, and New Zealand. Three States of the American Union failed to supply qualified candidates. The three scholarships provided for Rhodesia were not taken up.

MR. T. A. LAWRENSON, M.A., B.Sc., formerly of St. John's College, Cambridge, and at present headmaster of the Runcorn Secondary School, has been appointed headmaster of the Westoe Secondary School, South Shields.

SCOTTISH.

THE report on secondary education in Scotland which has just been issued is a particularly welcome document, as it clears up several questions that have for some time been in dispute. The new regulations as to grants for secondary schools are amplified and explained. Specialisation, after the intermediate certificate stage, is not only to be allowed, but will be encouraged. It is recognised that pupils at this stage are required at present to keep fully abreast of too many subjects, but there is small hope of general relief until the university bursary requirements are radically altered. As matters are really moving at last in university circles, the prospect of reform in the strongholds of mediævalism are not so hopeless as they seemed even a year ago. Attention is directed to the danger of overlapping that exists in certain populous centres where more than one authority is interested in the promotion of secondary education. This, however, is a danger on the right side, and, if there is only a sufficiency of funds, is no danger at all, but a genuine advantage. A majority of districts, especially in the sparsely populated areas, suffers from precisely the opposite defect—a single authority but an insufficiency of funds. The Department has already granted special subsidies to schools in such districts, but much more requires to be done before opportunity is equalised for the rural and town child.

THAT part of the report which deals with commercial education is by no means encouraging. Only ten candidates were presented for the commercial certificate, and only two passed. These results are so unsatisfactory that one is inclined to ask if there is not something wrong with the nature of the test set and with the whole scheme of commercial education laid down. Two passes in com-

mercial education in a country so dependent on its commercial prosperity as ours would look bad for our future trade if the certificates or the training on which they are given had any value. Let us hope they have not. Whatever blame is to be attached to the Department for the character of the commercial course, there can be no doubt whatever that, as the report states, the real onus must fall on our business men. "It may be doubted whether any real progress (in commercial education) can be hoped for until men of business realise that lads who become apprentices at fourteen years of age cannot possibly be expected to have received anything that is worth calling a commercial education, and that, if the prospective apprentice is to undergo any proper discipline of the right kind at school, he must remain there until he is seventeen, and must consequently have privileged treatment accorded him in respect of salary or position when he does enter an office." These words are the key to the whole situation. No inducement, but rather the reverse, is at present held out to our youth to remain at school. If they do, they find themselves playing the drudge to companions who left school years before them with little education.

MR. SINCLAIR, M.P., Secretary for Scotland, in presenting diplomas to more than two hundred school teachers attending Saturday classes at the Glasgow School of Art, referred to the work carried on in that institution. It is known and appreciated far beyond the bounds of the city of Glasgow. Of the many features of which the governors have good cause to be proud, the attendance of the school teachers in such large numbers must be one of the foremost. The enthusiasm, earnestness, and devotion of those who give up so much well-earned leisure to equip themselves more thoroughly for their work are highly gratifying to all who are interested in the progress of education. The benefits to the students themselves and to the country at large, not only of the work done, but of the example set in this respect, seem to Mr. Sinclair to be extremely high.

PRINCIPAL DONALDSON, in his opening address to the students at St. Andrews University, said that in Scotland the profession of teaching is likely to become much more attractive than it has been in the past. The Education (Scotland) Bill, which he confidently looked for next session, would secure for teachers fixity of tenure and a worthy pension scheme. If the conditions of service are made satisfactory in this respect there will be plenty of recruits to the ranks of the profession. Principal Donaldson is one of the few university professors who have maintained a close personal association with the general body of teachers. On several occasions he has rendered signal service by taking up the cause of his less fortunate brethren, and teachers have always listened with respect to his opinions. They trust his optimism on this occasion may be justified by events. All the same, it will be well for ambitious youths to delay rushing into the profession until some of these rosy visions have taken more definite shape; otherwise they may find themselves numbered among what Bismarck called the *Ihiturienten Proletariat*.

THE Scottish Art Teachers' Association, with the approval of the Education Department, has resolved to organise a national exhibit in connection with the International Congress for the Development of Drawing and Art Teaching, which is to be held in London in August, 1908. For this purpose it is proposed to have a preliminary exhibition in Edinburgh during the Christmas holidays. In order to make this exhibition representative of the whole range of drawing and art teaching i land and to ensure the success of the congress exhi committee in charge is asking for the co-operatio parties interested. The range of work will embra mens from all classes of schools—kindergarten, ele secondary, continuation, and technical.

THE success of the proposed Technical College deen is already assured. Including the £40,000 by the Education Department, upwards of £10c been obtained. The question of the annual ma of the college has been agitating the promoter scheme. Dr. Struthers at a recent conference w was able to assure them on this head. He remin that in the recent Education Bills for Scotlar provision for such institutions was made, and he that any future Bill would make similar provisior

DR. ARTHUR SOMERVELL, inspector of musi Board of Education, gave an address to the I Musical Association in one of the class-rooms of versity. Dr. Somervell said that music is tr much as innocent recreation, and is apt to b into a corner in these strenuous times. But musi considered, is one of the greatest harmoni humanising influences in the world. Music earliest and easiest means at our disposal for c sensitiveness to the higher rhythms and producing tive power. Everything in the universe acts through rhythm, and responsiveness to music is ward and visible sign of an inward sensitivene rhythm in all things.

IRISH.

THE autumn meeting of the Schoolmasters' A was mainly devoted to questions concerning t mediate rules and programme, but two other were introduced by Mr. Houston, of Coleraine One was a proposal to give a favourable recepti appeal of Lord Roberts to have all the youth of th instructed in military drill and in the use of the to consider its introduction into all Irish secondar This was adopted. The other was a suggestion duce Esperanto as a subject of school education. was less favourably considered and postponed f The association is strongly opposed to the rules gramme for the current year, and is anxious for 1909 should be submitted to the consulta mittee before being laid on the table of the Commons. The award of exhibitions and criticised on the ground of the inequality of th tion to the different courses; thus classics rece £815, girls £47; modern literature, boys £1, £1,369; mathematics, boys £537, girls £1; mental science, boys £1,072, girls £303. Th tion further disapproves of the admission of from the national schools without experimental the intermediate examinations, and urges upon to use more economy in the use of its funds, larger percentage may reach the schools.

THE Teachers' Guild has also forwarded a me the Intermediate Board dealing with the recent exhibitions and prizes. It points out, first, that th of exhibitions has been largely reduced, and, that the values are diminished. It then shows amount awarded in exhibitions per student pa examinations has gradually decreased during th years, being in 1903 £1 9s. 6d., in 1904 £1 2

£1 1s. 2d., in 1906 17s. 11d., and in 1907 12s. ing exhibitions and prizes together, it then shows that higher the grade the smaller the total amount ded, while the amount per student is actually less e junior than in the preparatory grade, being 11s. 9d. e junior and £1 in the preparatory; and it suggests as the amount of the preparatory grade prize fund finitely fixed at £1 for every student passing, so in ther grades there should be a definite amount awarded pupil, and that if the total amount must be lessened, decrease should take place in the prize funds and not e value and number of the exhibitions.

e Guild has also forwarded a memorial to Mr. Birrell ing out how seriously the work of the schools is pered by the unsatisfactory nature of the grants. There been a drop from £58,000 to £50,000 in the last three while the number of pupils presented for the exations continues to increase. The average grant per has fallen from £7 5s. in 1903 to £4 5s. in 1907, it is pointed out that in England and Wales the s from the Board of Education increase from year r in their total, and in the present year are being upon a much more generous scale per pupil; and , there are no local grants in Ireland, while in alone the local grant amounted in 1904–5 to 660, or nearly twice the sum received by all Irish ols from the Intermediate Board. It is suggested the change in the system of grants foretold last Easter the Chancellor of the Exchequer offers an opportunity reconsidering and enlarging the grants to Irish ndary schools.

provisional committee of the Classical Association ded is well pleased with the result of the circular in the autumn. It has received sufficient support its proposal to start an association, and it is to hold its first general meeting in January in Dr. Butcher, M.P., who has consented to act as of the association for the first year, will preside. e of classical studies seems likely to revive in as classical societies are being formed in several niversity colleges. That in Trinity College entered second year in November, when a lecture of re- interest was given under the presidency of Dr. by the Right Hon. Mr. Justice Madden, Vice- lor of the University of Dublin, on early classical in Ireland, with special attention to the sixteenth

BIRRELL has more than once in the last two months y declared his intention next year of introducing arliament a University Bill to satisfy the claims man Catholics to higher education, but he has also clear warning that, although he is willing to s political career on this question, it can only be by a willingness on all sides to make concessions, ss this is shown there will be no University Bill Parliament. It is hoped that this will be taken ast, as everybody now desires the matter to be closed. vance is genuine, and is doing much mischief to ary. It is well sometimes to remember the saying the best is the enemy of the good." That the d for higher education is increasing is clearly demond by the numbers entering for the examinations of Royal University. They were 1,898 in 1881–2, 2,894 2a, and 4,115 in 1907. At Convocation the Chancellor down certain factors as desirable for a satisfactory e of university education: (1) the safeguarding of religious desires; (2) encouragement of emulation between different universities; (3) the combination of residence, teaching, and examination so far as possible; (4) cheapness of education; and (5) an effort to provide work for graduates.

THE second number of the *Irish Educational Review*, that for November, is interesting reading. The first article is by the Bishop of Limerick, on the Queen's Colleges; the second is in Irish; and others deal with changes in primary education in Ireland, the training of the voice, the philosophy of Herbart, school attendance, the teaching of history, and education as a science.

THE fourth number of vol. vii. of the Journal of the Department of Agriculture and Technical Instruction is extremely good reading; it contains more than 200 pages with numerous illustrations, and is published at 6d. It appeals to all interested in education, fishing, or farming, using these words in their widest sense. It contains in full the first vice-president's farewell address to the council; the address of Mr. Fletcher, the assistant secretary, delivered to the Council of Agriculture, on "The Functions of the Department in Relation to Rural Industries"; and Mr. W. S. Green's official report on the question of a Government brand for fish cured in Ireland. It has also a summary of the Workmen's Compensation Act of 1906, and articles on Winter and Summer Dairy Farming, the Construction of Piggeries, the Cost of Forest Planting, the Prevalence of Potato Blight, Duck-keeping as an Industry, the Cultivation of Osiers, and Cider-making. The second of the illustrated articles on technical schools deals with Ballymoney. The first was on the Belfast school, the largest in Ireland; the second shows what is being done in a small town of some 3,000 inhabitants. The site was granted by Lord Antrim at the rent of 1s. per annum. The building was erected at the cost of £1,500, secured on the rates. The estimated income is £420, and expenditure £471, while there is an accumulated fund of £1,483. The principal rooms are for manual instruction, domestic economy, science laboratory, and art instruction. The equipment of the school cost nearly £1,300. The total number of students for last session was 237, and these took 487 classes.

WELSH.

THE tenth annual report of the Central Welsh Board for Intermediate Education has been drawn up for the year 1906–7. There are ninety-five county schools in Wales, under the charge of seventy-four headmasters and twenty-one headmistresses. There are 266 assistant-masters and 262 assistant-mistresses on the staffs of the schools. This shows an increase of nineteen masters and nineteen mistresses as compared with last year. There is thus in the Welsh county schools a total of 623 teachers. There are in the schools thirty trained certificated teachers, seventy-four certificated teachers, fifty-four teachers who hold the Cambridge University diploma, four teachers who hold the London University diploma, and eighty teachers who hold teachers' diplomas or certificates from various other sources.

THE total number of pupils in the Welsh county schools is 11,577, viz., 5,648 boys and 5,929 girls. The total number in 1905 was 10,413, thus showing an increase of 1,164. With regard to the examinations, it may be mentioned that the average cost per school is £31 2s. 8d.; the average cost per school of inspections is £20 3s. 9d., whilst that of the administrative work of the Board is

£19 10s. 3d. Thus the average cost per school of the examination and inspection (together with necessary administration) comes to £70 17s.

IN the general report of the Board it is hoped "that no effort will be spared to ensure that the provision of education of a true secondary type shall be ample to meet all needs, both in accommodation and equipment." Attention is directed to the increasing correlation with the home environment of the Welsh child. "One pleasing symptom of this development is shown in the fact that the number of children studying Welsh in the county schools has doubled during the last two years."

THE following passage is an interesting summary of the place of the Welsh county school: "It cannot be doubted that much of the marvellous success of the Welsh county-school system has been due to the historical unity of the schools and to the resultant position of strength which they occupy in the imagination and regard of the Welsh people, forming one whole in the national life. The schools stand before the nation not as weak and isolated units, or as small and unrelated local groups, but as one system with common aims and aspirations, combined with much freedom of individual development, and unified through a public body, whose members are in close touch with the governing forces of the national life."

THE average length of stay in county schools by pupils is improving. In 1904, 345 per thousand pupils stayed over six terms; in 1905 the number was 358 per thousand. The length of stay has improved in thirteen out of the sixteen counties, and the slight decline in the remaining counties is due to the very large increase in the number of pupils in those counties.

ONE of the most important recent suggestions with regard to the county schools is that of regarding the county rather than the school as the unit for the purpose of a complete curriculum. The report of the Central Welsh Board points out that, in so far as the older departments of the curriculum are concerned, the differentiation of schools would be a very difficult problem. "There is, however, no reason why some progress should not be made in respect of commercial and technical departments. If the highest work that can reasonably be attempted in schools is to be successfully accomplished in these departments, it would appear to be necessary to designate a few schools for that highly specialised work."

IN addressing the meetings in connection with the opening of the Edward Davies Chemical Laboratories at Aberystwyth, Mr. Asquith, the Chancellor of the Exchequer, showed great insight into the educational system of Wales. He appreciated the fact that the university system in Wales had been undertaken by the people for the people. Within the last thirty years, for instance, nearly £120,000 had been subscribed for the University College at Aberystwyth, and this sum had been contributed by 100,000 separate donors. During the same period a sum of between £80,000 and £100,000 had been contributed for the intermediate schools. He added very suggestive advice: "Money was needed, not for the remission of fees—fees are very low in Welsh colleges—but for improved equipment. They could not save more improvidently than by stinting and starving their educational equipment, and the danger was of spreading out the curriculum too widely. He who strives to embrace too much grasps very little. At the present time it would be wise to aim at greater concentration and co-ordination."

RECENT SCHOOL BOOKS AN APPARATUS.

Modern Languages.

Vivent les Vacances! By Clémence Saunois. (Blackie.) 1s.—Miss Saunois has already made with her attractive book "L'Anniversaire de In the present volume she again shows her skill lightly and pleasantly of girls, and for girls. are animated and natural, and gain not a little really excellent pictures by Mr. (or Miss?) R. H notes deal largely with the position of pronouns in some cases French expressions are rendered i This occasionally goes too far, as in the not *trois ans*—She is three years old." A vocabul given. The text is well printed; we have, how a dozen slips in the punctuation.

Molière, Les Femmes Savantes. Edited by l xvi+144 pp. (Dent.) 1s. 6d. net.—We are g that Dr. Spencer is continuing his edition o plays, for he has long been a devoted student and his fine scholarship and admirable reserve fectly for the work. His preface, glossary, an "Les Femmes Savantes" could not easily be s

Labiche et Delacour, La Cagnotte. Edited Farnsworth. ix+134 pp. (Heath.) 1s. 3 really the kind of thing we want to read in c probably all right on the stage, where the broa has its occasional justification; but in print the creatures, with their vulgarity and slang, bec repulsive. The notes are good on the whole; supplies French slang the notes give American and so our pupils will get a pretty extensi vocabulary from reading this book.

A First German Course. By J. B. Joerg Joerg. 192 pp. (Cassell.) 1s. 6d.—Accordi authors, "the method followed is a middle co the old system and the new one," and we als the familiar phrase, "we have endeavoured best points of both methods." These profes cover a good deal of *old* and not much *n* present instance we have translation everywl of grammar; a very large number of words excellent illustrations, worthy of being put to The vocabularies at the end are incomplete; German-English contains 1,800 words, which than ordinary pupils can learn in a year. T not be regarded as representing any advance

Classics.

Cothurnulus. Three Short Latin Histori the use of beginners, with Vocabularies. By iv+56 pp. (Bell.) 1s.—Why could not th been better sewn? is our first question: it and only yields to violence. Once open, hov highly pleased with the contents. Th "Veturia" (on the story of Coriolanus), "I (on Julius Caesar), and "Cremutius," one c Tiberius's rule. The Latin is simple, the ac and the book as a whole admirable. Just th of book we now want for young beginners we recommend it cordially. We can also experience that the plays act well on the s great pity, however, that the long vowels are

A First Latin Grammar. By E. H. Scott viii+150 pp. (Blackie.) 2s.—This book giv plete grammar, but the minimum that

...r. It is very good, in our opinion, in what it inserts, generally in what it omits. We think, however, that distributives ought to be in it. The distinction of theses into open and rejected clauses is simple and ...l, because it explains itself. The pages of examples ...es of cases, pronouns, and prepositions are also very ... We are inclined to prefer an interleaved book with ... examples; but all do not think alike on that point.

...Macci Plauti Mostellaria. Edited with Notes, ...atory and critical, by Prof. E. A. Sonnenschein. ...nd edition, interleaved. xxii+176 pp. (Clarendon ...s.) 4*s.* 6*d.*—Good school books are so few that this, ...ugh the second edition, deserves mention. The editor ... of the first Plautine scholars, and keeps well abreast ...scholarship; and Plautus, if any author, needs notes. ... play itself is excellent, and there is very little in it ...ch is unsuitable for young readers.

...Virgil's Aeneid, Book X. Edited by H. B. Widdows. ...50 pp. (Dent.) 1*s.* 4*d.*—Little need be said about ...edition, which is very much like others. It has the ... introduction and notes, which, as usual, contain a ... deal of translation. Nearly all these translations are ...essary, and, if so, they are bad educationally. There ...vocabulary.

...paratory Caesar: de bello Gallico. Books II.–III. ...F. Ritchie. viii+159 pp., 1*s.* 6*d.* The same, ... III. alone, 1*s.* (Longmans.)—Besides the usual ...ductory matter on Caesar, Gaul, and the Roman ..., and a few sensible notes, this book contains the ... of II.–III., and on the opposite pages the same ...ified. The simplification consists of a restatement in ...le sentences of what Caesar expresses by complex ...ods. The plan is very good; the only question is ...her it would not be better for the master to do this ...self as a preparation for the next day's work, and ...answer to that question depends on the age of the ... and their knowledge. If boys begin Latin young, ...Caesar is their first author, they could not do better ...than Mr. Ritchie's edition.

...Exercises on Latin Models. By A. C. P. Lunn. ... (Arnold.) 1*s.*—This seems to us to be a useful ...riginal exercise book. On one page are Latin ...ces with references; on the other, English sentences ...llar types for translation. A few grammatical ques... are added to each exercise, deducing the rules of ... from the examples.

English.

...Cambridge History of English Literature. Vol. i. ...the Beginnings to the Cycles of Romance. 504 pp. ...ridge University Press.) 9*s.* net.—This work, which ...es to be great and very important, is edited by Dr. ..., the Master of Peterhouse, and Mr. A. R. Waller, ... same college. Throughout the volume, intentionally ..., the editors' hand or their fiat is seen; with the ...ion of one chapter, the book might have been ..., so far as its style goes, by a single scholar. ...Indeed, it has none: and it aims at none. It is a ..., informing, Teutonic monument of all that ... know about the actual facts of our literature ... the times of Chaucer and his forerunners. Very ...ionally are the learned writers of the various chapters ...yed into any note of admiration or even of appreciation, and the only one of the contributors who seems for ...oment to take his subject cheerfully and lightly is, ...e should expect, Prof. Saintsbury. There are, on the ...e, few quotations; pictures and all illustrations are absent. From this it will be seen that the book, and consequently its successors, are not for the multitude. It is a literature for scholars; and, one must add at once, it is a splendid production. The chapters are taken by writers who have made the particular sections on which they write their own; but the nomenclature of the chapters is new and free from the hide-bound divisions we are accustomed to. The Runes, Old English Christian Poetry, English Scholars in Paris, Anglo-French Law, do not usually find their true places in English literature, and the appendix on early prosody, which the editors found was necessary, is admirable. The chapter on the Arthurian Legend (pro-Celtic) and that on Old English Christian Poetry seem to us to be the least bookish and the most stimulating parts of the book; but the preface to the whole clearly points to the scope and intention of the volume. The bibliography is beyond praise; and scholars like Stephens, Thorpe, and Budinszky, unmentioned in the text, receive their recognition. Perhaps the volume may excite some enterprising publisher to find an adequate "translator" of some of our older work: for, with bated breath be it said, Beowulf has not yet come to his own. The print and binding are handsome, and the book is cheap.

The Use of Life. The Pleasures of Life. By Lord Avebury. (Macmillan.) 2*s.* net each.—Most of us know these delightful books, and they have long been popular with many classes of readers. In their new form—the pretty Pocket Classics edition—they will secure many more readers, and we doubt not do a great deal to sweeten many more lives.

Chaucer's Prologue, Knight's Tale and Nun's Priest's Tale. Edited, with Introduction, Notes, and Glossary, by F. J. Mather. "Riverside Literature Series." lxxix+172 pp. (Harrap.) 1*s.* 6*d.*—This edition has a good introduction, a few notes, and a very full glossary.

The Myths of Greece and Rome: their Stories, Signification, and Origin. By H. A. Guerber. xiii+395 pp. (Harrap.) 2*s.* 6*d.* net.—The idea of retelling the ancient myths with the help of frequent quotations from the English poets who have used them is an excellent one. It is a pity that Mr. Guerber's own style is far from faultless, and his taste in poetry not exacting. To call such a verse as this a translation from Pindar is an outrage on a great poet:

"They till not the ground, they plough not the wave,
They labour not, never, oh! never!
Not a tear do they shed, not a sigh do they heave!
They are happy, for ever and ever!"

The "reverence due to boys" (and girls) is preserved, as is well, but not always happily. "The sun-god wooed the girl warmly and persistently, and at length had the deep satisfaction of seeing his affections returned"—better the baldness of Lemprière, one would say, than this sort of stuff. The same criticism is provoked by some of the reproductions from modern paintings. Otherwise, high praise is due to the excellent copies of many famous pictures and statues. Indeed, the publishers offer an amazing amount of good print and good illustrations for the money.

Geography.

The "Day by Day" Tellurian and Calendar. (Philip.) 30*s.* net.—The simplest way to illustrate the changing illuminated hemisphere of the earth throughout the year, and therefore the cause of the seasons, is to place a lighted lamp upon a table and carry round it a globe having its

axis pointed in a constant direction. This method is to be preferred to any complicated Tellurian or Orrery, in which more interest is attracted by the mechanical devices which produce the various motions than by the motions themselves. A disadvantage of the lamp-and-globe method and of a Tellurian is that a class cannot easily see the different aspects presented by the earth to the sun at different times of the year when the revolution of the earth takes place in a horizontal plane. This difficulty is removed by the "Day by Day" Tellurian, which is arranged so that the plane of the earth's orbit is vertical; and the sun and earth are therefore seen as if the observer were looking down upon them from a point above (that is, north of) the orbit. The sun is represented by a ball slightly out of the centre of the orbit, and a 6-inch globe represents the earth, the two being connected by an arm, so that the earth may be shown revolving around the sun. By a simple and ingenious device, the axis of the earth is kept in a constant direction during the revolution, so that the aspect presented by the earth to the sun

The "Day by Day" Tellurian.

at any time of the year is accurately shown. The Tellurian, which measures 48×55 inches, can be set up or taken to pieces in a very few minutes, but it may be fixed permanently upon a wall, and the terrestrial globe moved day by day in conformity with the movement of the earth. Used in this way, the model may be made very instructive, and would be a valuable addition to the equipment of a geographical laboratory. Where it is possible to substitute an electric lamp for the globe representing the sun, the exact conditions of illumination throughout the year can be exhibited, and the value of the apparatus will be greatly increased.

Mathematics.

A Modern Arithmetic with Graphic and Practical Exercises. Part i. By H. Sydney Jones. xii+361 pp. (Macmillan.) 3*s.*—It is stated in the preface to this book that in it an attempt has been made to provide a course of work in which the essential parts of arithmetic are dealt with in the spirit of recent recommendations. The attempt seems to us to be very successful. The expository parts of the book are clear and reasonable, v exercises are exceedingly varied, free from un complications, and yet of sufficient difficulty to the best efforts of the average pupil. The gra does not consist of exercises in plotting point employed, not only to illustrate the meaning metical processes, but to give practice in estimat and is usefully conjoined with scale drawing. T volume covers the subjects prescribed for the C Cambridge Junior Local examinations in arith other examinations of about the same scope. the book well deserves the consideration of t search of a work that is suited to present ne volume is provided with answers and—a featu too often absent—a good index.

The School Arithmetic. By W. P. Workma edition. viii+547 pp. (Clive.) 3*s.* 6*d.*—The fi of this arithmetic was noticed in THE SCHOO vol. v., p. 473. In this edition the only chang be the addition of two chapters on logarithms respectively.

Graduated Long and Cross Tots. By C. 64 pp. (Commercial Education Department Chamber of Commerce.) Paper covers, 6*d.* exercises provided in this collection seem t graduated; if used in the way suggested by th they should go far to produce both speed and a the kind of arithmetical work with which they examination papers included in the collection wil to many.

The Methodical Arithmetic. By W. J. G Parts ii. and iv., each 24 pp. (Dent.) Pap part ii., 1½*d.*; part iv., 2*d.*—Parts i. and iii. we in THE SCHOOL WORLD, vol. ix., p. 437; parts seem to possess the same characteristics as those under notice.

Science and Technology.

The Bird Book. By Fannie Eckstorm. xii (Harrap.) 2*s.* 6*d.*—British readers of American natural history often find a difficulty in recogni the names employed, animals common in this well; we fear the usefulness of the excellent vol us may also be impaired for this reason. It w be easy in such cases to include a table of sy the English edition. "The Bird Book" is w throughout, but its special value lies in the ment of some questions of structure and gener of bird life—interesting subjects quite within prehension of young students, but not often d so elementary a book. A full index is provided.

School Hygiene. By Herbert Jones. x (Dent.) 2*s.*—This little volume may be re cordially to the notice of teachers and school The first half of the book deals with the e school planning, the second with the means of s personal health of the scholar. It is clearly written, and adequately illustrated. Mr. Jones i an authority on his subject.

The Microscope and How to Use it. By T White. x+159 pp. (Robert Sutton.) 3*s.* net.— in microscopical technique who have not the of direct help from an expert can scarcely sele concise and trustworthy guide than this little in the third edition. The inclusion of a secti M. Amsler, on the staining of bacteria, and of on the marine aquarium, adds considerably to of the book.

...ence through Stories. By Constance M. Foot. ...pp. (Charles and Dible.) 1s. 6d. net.—These stories ...intended as a vehicle for the introduction of very ...entary science to children of from six years of age. ...seem well adapted to the purpose.

...ms for Plant Description. By E. Evans. (Colne: ...ham.) 6d.—Will be found useful to candidates for ...st-stage examination in botany of the Board of ...tion.

Art.

...son's New Drawing Course, Stage VI. By J. ...han. Ten sheets, 24 × 20 in., in portfolio. 15s. ...er's Handbook. 87 pp.; plates and diagrams. 6d.—In Stage VI. of his "New Drawing Course" ... Vaughan has evolved an excellent scheme, ideal in ... respects, which, if carried out conscientiously and ... spirit of the author's intention, will go far towards ...lisation of the desire expressed by him in the intro... to the handbook, that is, to make the subject ... enjoyable, stimulating educational process, and a training of hand and eye."

... map out successfully a scheme for a course of ...ction in drawing is a matter which involves ...te knowledge both of the subject and of the con... under which it is taught. To carry out such ...heme to a satisfactory conclusion in the face of all ...lties of administration and organisation, of unequal ...lification and inefficient accommodation, involves ... only knowledge and experience, but also enthusiasm, ... patience, and an untiring industry. The success ... of this scheme of work depends therefore ... entirely on the teachers to whom will fall the ... of administering it. In his introduction to the ... (which to our mind is the far more valuable ... of the publication), Mr. Vaughan lays down the ... principles on which his scheme is based, and dis... the relation of drawing to the other forms of educa...dwork. Under the heads of "Free Drawing," ...cal or Technical Drawing," and "Manual ..." he discourses on methods, styles, materials, and ... with a facile pen, and though his remarks may ...sionally trite, they are generally to the point and ... interesting.

... suggested solution of the difficulties presented by ...ical object seen in perspective strikes one as being ... convincing, and one sees little to choose between ...thod Mr. Vaughan advocates for the drawing of ... on plate vi. and the method he condemns, the ...pparent difference being that he would begin at the ..., whilst by the other method one begins at the ... The illustrations and plates, which are numerous ...ell reproduced, are intended merely to illustrate the ...les laid down; indeed, to quote again from the ..., "it may almost be said that the measure of ... attained . . . will be in direct ratio to the degree ... teachers put *themselves* into the work." The ... Drawing Course" may be warmly commended, not ... the primary-school teachers for whom it is evidently ..., but to the teachers of drawing in secondary, and other schools of a more advanced type.

... *Vistaplane; an Aid to the Teaching of Model ...ing.* (Henry G. Murray, Britannia Studio, Caroline ..., S.W.) 6d.—This device must, we fear, be placed ... category of mechanical aids to drawing which ... expert opinion on art teaching tends to taboo. It ...nevertheless, an ingenious contrivance, consisting of a ...ar disc of glass, 4 in. diameter, with a small handle to permit of its being held between the eye and the model in the position of a picture-plane. By means of horizontal and vertical lines ruled on the glass, the student is enabled to ascertain the apparent inclination and convergence of receding lines. Teachers and students who feel the need of this sort of assistance will find it provided in the "Vistaplane" in a very portable and inexpensive form.

CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD *will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

Chemistry as a School Subject.

IN his withal valuable article under this title, Dr. Cohen criticises adversely certain malpractices of the schools from observations which he has made as an examiner; and he cites them as arguments why, in his opinion, when a boy is destined for a scientific career, systematic chemistry teaching should be postponed until a foundation in the simple branches of mechanics and physics has been laid. It is curious that he should limit his argument to the boy destined for a scientific career and it is not clear what he means by the systematic study of chemistry—whether he contemplates an unsystematic chemistry being taught with advantage. There are few who understand the subject who will not agree with his individual criticisms; but surely they go only to show that there are wrong ways of teaching the subject which are to be avoided—not that the subject is a bad one.

If the teaching of each subject in the school curriculum were considered in a similar manner, similar adverse conclusions would be arrived at; the result would be the decision that no subject is a sound discipline and that there should be no teaching at all—a happy result perhaps, as there could then be no examinations and Nature would not be interfered with. In point of fact, the statement that chemistry does not admit of simple and logical treatment is the most unwarrantable and ill-advised assertion a chemist could possibly make: it is to be feared that Dr. Cohen has not yet grasped the situation and that he is not in the least alive to the infinite opportunities which the science he professes affords of developing a scientific habit of mind. His article, indeed, is most interesting as a psychological study—a clear illustration of the difficulties to be overcome by the teacher of scientific method.

CHEMIST.

AN article in the November number of THE SCHOOL WORLD raises an important question—How far is chemistry suitable as a school subject?—a question on which I trust many of your readers who have had experience of the value of scientific training will give their opinions. The writer, it is to be noted, writes, not as a teacher, but as an examiner, and, it may be added, as a professor. For it is a striking fact that each professor wishes us, in our schools, to teach all but his own subject; the professor of chemistry tells us to teach mathematics and physics well, mechanics, hydrostatics, pneumatics, sound, light, and heat, and he can teach the chemistry; the professor of physics would have us send him pupils who have a thorough knowledge of chemistry, mathematics, French and German (to enable the student to read foreign publications), and he would like physics to be a sealed book;

and so on in all subjects. This is easily understood. It must be delightful to have pupils with a good knowledge of all things except that which you want to teach them; the results of one's work are so obvious and the difficulties so microscopic. A headmaster cannot tell, however, which of his pupils will specialise in chemistry, which in physics, which in modern languages, &c., and before he discovers, the mischief is done, and the pupils have been taught in school something of those subjects in which they are to specialise.

With regard to chemistry as a school subject; as in the first place a man cannot claim to be educated who has not some knowledge of the elementary principles of chemistry, it is necessary that it shall have a place in the curriculum of the school, whilst, further, it is a most valuable subject for the training of scientific method. Although I am prepared to admit that it is more difficult to teach than elementary physics, yet I believe that, well taught, it is quite as valuable, and for the training of reasoning is better than any other school subject. With regard to the objections raised in the article in question, I should like to treat them seriatim, because they appear to me to be difficulties due, not to the subject, but merely to the method of treating it. A teacher working in accordance with the syllabus published many years ago by the Incorporated Association of Headmasters or the syllabus of the Irish Intermediate Board would not experience them. The first point raised is the difference between the behaviour of chalk and zinc when heated. If the experiments were done on two successive days it is probable that the student would be perplexed; but the heating of zinc should be merely one stage in the systematic study of the rusting of metals, and the fact should have its proper place in the boy's mental equipment. The endeavour to obtain oxygen from the rusts—which are known to contain it (though not known by this name—it is probably the active part of the air) leads to the further heating of the rusts, and the discovery that mercury rust is decomposed on further heating. This is quite easy for the boy to understand; he has no difficulty in it, though a professor could, perhaps, raise one in his mind. Heat accelerates the action—that is his idea—it may produce a synthesis or a decomposition Later work gives him many illustrations of both.

That the gas comes from the chalk and not from the acid should not be mysterious—he proves it does so, and the proof forms a most valuable training in reasoning: (i) the loss in heating is 44 per cent., (ii) the loss by the action of acid is 44 per cent.; therefore *probably* the loss is due to the same gas; by collection of the gas obtained by both methods the identity is demonstrated. That the gas in the case of the zinc and acid came from the acid would have been indicated (this at an earlier stage) by the fact that by thoroughly heating the product left after the action, oxide of zinc results. The difficulty raised here does certainly indicate a rather widespread failing of teachers, viz., the neglect of the examination of *all* the products of a reaction.

With regard to the composition of water, I agree with Prof. Cohen that the electrolytic decomposition is unsatisfactory—if only because it is a secondary reaction, and because it tends to false reasoning—but it is unnecessary. The composition is known (i) qualitatively by burning hydrogen, and (ii) quantitatively either by volumetric synthesis or by passing hydrogen over copper oxide—an experiment which I have satisfied myself by trial can be satisfactorily performed by boys. From either volumetric or gravimetric composition the other follows, because the densities of hydrogen and oxygen should b previously discovered.

Similarly, the composition of hydrogen chlor not be deduced from decomposition of the aqu tion. It is deduced immediately from the det of the densities of the gases, and can be synthesis.

Further, with regard to the fact that two hydrogen and one volume of oxygen do not volumes of the combined gas, to the boy wh scientifically trained the amazing thing is no volume is not three, but the remarkably simple relation existing, which necessitates, and at a receives, theoretical explanation. He should at stage have found that while conservation of natural law, conservation of volume is not— alcohol and 50 c.c. of water do not form 10 The introduction of atoms and molecules is n sary when the chemical knowledge acquired req unifying otherwise isolated facts. In my own s only after about eighteen months' work at che any atomic theory is introduced. Again, with the formulæ HNO_3 and H_2SO_4, to me the appear unfortunate, because, speaking for mysel introduce either of these formulæ until they found; and this determination of the formul valuable training, because it proceeds along t (*a*) observation of facts (quantitative), (*b*) the tion of the most probable explanations, and (*c*) by independent methods.

The use of a formula to prove a chemical know, very common—like Prof. Cohen, as an I have frequently found it—but this is due to in the teaching, and not to the subject taug the fact that teachers have too much copied methods and tried to teach chemical theory, an employed chemistry as a vehicle for trainin methods of observation and reasoning.

I am willing to admit that, badly taught, c not a good subject of education, but neither i subject in similar circumstances; further, tha has been taught badly very often in the pas other subjects have also been taught badly. however, that more progress has been made i in the teaching of chemistry than in that of subjects, and I believe that to the increasec the man of science in improving the metho ing science is largely due the activity in to improve the teaching in most of the sul school curriculum. May we not appeal to and to other professors of chemistry not t those who believe in chemical science as a me: tion, but to endeavour to assist them by ir methods?

LIONEL

Central Secondary School, Birmingham.

WHILE probably the majority of schoolmaste with much that Prof. Cohen says in his ar November issue, many will be surprised at h tion of the use of the electric current. A bo the electrolysis of water, and shows that the vitriol, or some other body, is almost essentia the gases evolved, and learns that when th heated pure water, and pure water only, is synthesis of water prevents his misunder: electrolysis. He accepts this new power of current, and classes it with its other myste such as yielding heat and light, its use for mc

ice-transferring purposes. He cannot explain its neither is he called upon to do so. If Prof. 's objection is valid, the boy should also be prevented sing that other intangible mystery called heat, and e he must dispense with the aid of solution. All uzzle him extremely if he attempts to explain their for, as Prof. Cohen says, heat seems to have different effects upon chalk and upon quicksilver. y is asked to observe the effects and to try to what happens to the substance investigated.

is it really necessary to guard him from the know- f puzzling things? His whole existence has brought him a constant succession of natural paradoxes. otion of flame, the buoyancy of balloons and of steel the driving power of screw propellers, the stability ycles, and a multitude of everyday sights have his reason; so much so, that the wonders upon the law of reciprocal proportions is based may fail press him. Contrary to the doctrine favoured by a g section of critics, the schoolmaster is usually the revive the boy's belief in reason.

why should he be denied the happy surprises that hed and inspired Priestley? The observant boy is to be stimulated by them, and they may enlarge duller boy the capacity to wonder. The explana- an wait; all too quickly boys begin to think that hing has been explained.

bably all teachers will agree that the study of physics precede that of chemistry: but not that the boy escape the unexplained. How many boys, unaided, leduce Boyle's law from the results of their experi- and the curve they draw? And when the law is the boy can do no more. He cannot explain it; titude is that which he adopts towards the action of trial in electrolysis. The process is mysterious. And, he is to be told that men of science believe that e gas but the unoccupied space is contracted. The ation is not convincing. And if he accepts the e of molecules he will maintain that these particles epel each other.

difficulties as serious will lurk in nearly everything udies—weight, energy, reflection, radiation, &c. when he makes his start in the world, whatever his calling, he must deal with many matters—and some—which he will not be able to explain. Many s have the greatest faith in chemistry as a pre- n for him. E. I. Lewis.

lle.

.ST fully realising some of the difficulties pointed Prof. Cohen, one cannot help feeling that these pit- ay, to a great extent, be avoided. To take a case t: it was stated that no powers of observation could a child to discover, in experimenting with zinc and iat the gas comes from the acid rather than from c, and that he must rely on the statement of the . May I be allowed to describe how the problem tacked in a class of my own a short time ago?

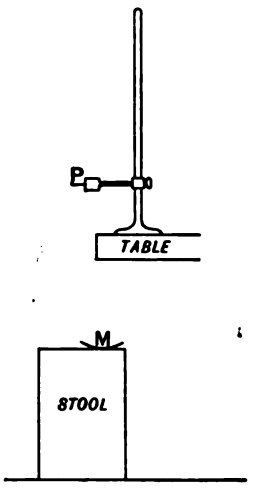
ie outset it was stated that "it looked as if the of gas were oozing out of the zinc." They were minded of an experiment previously performed, in they had started with some well-formed crystals vitriol, and by means of zinc displaced the copper, ntually obtained, from the filtered solution, crystals tally different kind. This gave the idea of displace- nd the idea was now connected with the experiment d. Not a few thought the two cases might be us, and evaporation and crystallisation were sug- as a means of further proof. On finding crystals of the same kind as before, there seemed little doubt that the zinc had united with part of the acid, and had taken the place of the gas it had "sent out." The further information was volunteered that there must have been something in the acid (dilute sulphuric) exactly the same as in the blue vitriol, because crystals exactly alike had been obtained in both cases. During the operation various questions were asked by these young experimenters, such as: "How do you know that the gas did not come from the water the acid was mixed with?" Or again, "Would there have been a white powder left if the acid had been evaporated before the zinc was put in?" The answers having been satisfactorily demonstrated, the study of the gas itself was begun. Then different metals and different acids were tried, all leading to the same conclusion.

One sees in this and many other experiments of a similar kind opportunities, not only for gaining useful information, but also for the exercise of the faculties of reasoning and imagination. This, combined with the necessary care in arranging and fitting up apparatus, must surely be discipline of a most sound order. Would it not be dangerous to allow that the discovery of pitfalls is in any way beneficial to the young student? Rather try to do away with the pitfalls, and there still remains a wide field wherein to work. May Bateman.

The Mount School, York.

The Refractive Index of a Liquid.

Mr. Jordan's method of finding the refractive index of water is so good, that I venture to describe a modification of it which is suitable for a large laboratory class. Good concave mirrors of about 60 cm. radius of curvature can be procured at 1s. 10d. each. If one of these is laid on a flat stool, the point of a pin held by the clamp of a retort stand, and projecting over the edge of the table, can easily be adjusted so that it coincides exactly with its own image formed by the mirror.



If the mirror is filled with water, the pin can be lowered so as again to coincide with its own image. The distances of the pin from the mirror are measured with a metre scale, and in this way a class of students can obtain results correct to two places of decimals. If other liquids than water are used, precaution must be taken to protect the silvering at the back of the mirrors. W. D. Eggar.

Eton.

Seeds and Seedlings.

Teachers of nature-study sometimes cast about for suitable subjects to occupy the attention of their classes during the winter months. May I recommend the study of seeds and seedlings? It is useful to reserve the fascinating questions connected with the germination of the seed and the growth of the seedling until the time when subjects are rather scarce.

In order to be able to carry on this work without undue delay, some method of supplying artificial heat is almost necessary. The best method is to have a germinator, with a tray of damp sand standing in warm water. It may be of assistance to some teachers if I describe a convenient form of germinator, a form which has been successfully

used by us in Leeds. Fig. 1 gives the general appearance of the germinator, and in Fig. 2, which represents a section, the internal details are shown. The floor of the water-bath (Fig. 3) must be very strong to support the weight of the water and the sand tray. The sand tray is raised above the floor by six hollow supports, which are fastened to the floor and sides of the water-bath. The sloping lid is useful to allow the condensed water-

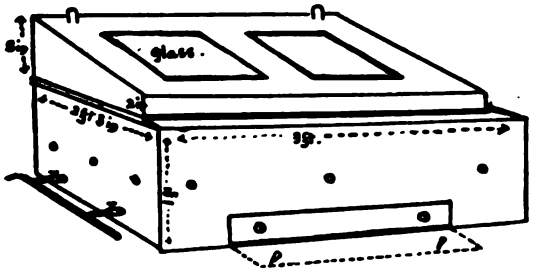


FIG. 1.

vapour to run down into the tray again. The sand tray is made of zinc, but the rest of tin. We use gas as the source of heat, but a lamp could be utilised; and my colleague, Dr. Smith, tells me that an electric incandescent lamp (16 candle-power) in contact with the underside of the bath floor will be sufficient. As the water in the bath evaporates it must be replenished, and the sand must be kept damp. The seeds can be germinated in porous

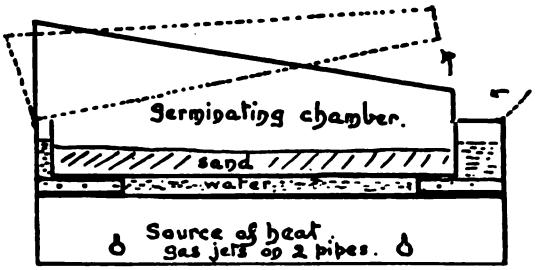


FIG. 2.

saucers placed upon the sand, but if older stages are wanted the seeds can be sown in boxes of sawdust or even in the sand. With such a germinator it is possible to enlarge the scope of the seedling work very considerably.

I indicate below a very rough outline of work:

1. Study the sequence of events in the growth of beans and maize, and follow this by an examination of the main

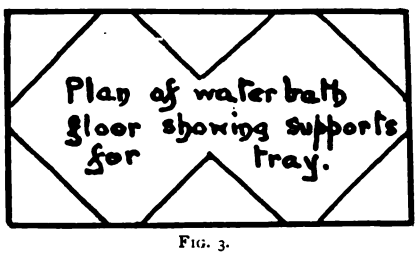


FIG. 3.

features of a series of the seedlings, starting with the oldest and working back to the seed itself.

In order to have a sufficient number of stages for examination, seeds must be sown at intervals of a day or two. In the germinator, a seedling which takes from four to five weeks in the open can be raised in a fortnight.

2. Compare the seedlings of oat, melon, date, pine, onion, lupine, mustard; take note of (i) how the embryo escapes from the seed coats, and (ii) the source its position with reference to the embryo, and method of its absorption by the embryo.

I hope that many teachers will undertake nex The stages of the bean and maize form, no doubt, introduction to the study of germination, but in t parative study of a variety of seedlings there is field of inquiry, which will furnish the enthusiastic and class with new and interesting work.

3. Elementary experimental work. (*a*) To sh tion of maximum growth in a radicle. A germina with a short, straight radicle is marked along it with equidistant dots of Indian ink. The pe arranged that the radicle will continue its grow the tube of a thistle funnel. A watch-glass on th the funnel and a piece of damp blotting-paper in make an effective damp chamber for the seed; t end of the thistle funnel passes through a cor bottle of water.

(*b*) In order to show the position of curvature bean is suspended by a needle to the cork of a la so that the marked radicle is horizontal. The a bottle can be kept damp by blotting-paper or sponge.

(*c*) The stimulus of gravity can be demons tilting a bottle in which a bean radicle has bee straight down.

(*d*) The stimulus of light is best shown by g seeds of castor-oil or sinapis upon muslin stretc a tumbler, and then placing the tumbler in a which has one small aperture for the entrance o

(*e*) The stimulus of moisture can be demor means of castor-oil seeds germinating in damp sieve. If the sieve is suspended in a bell jar in air is kept damp, the radicles will grow through the meshes of the sieve; they can be ignore gravity for the time being by soaking with water. The experiment should be perfo dark cupboard, to eliminate the effect of light.

(*f*) Experiments are easily devised to show th of carbonic acid gas and heat when seeds germi

4. Advanced experiments can be tried by children, who will take a keen interest in c apparatus for them. Any book dealing with p logy, such as Darwin and Acton's, will sugg experiments; but I should like to direct the teachers to the excellent article upon this su municated by Prof. Miall to the August, 1902, THE SCHOOL WORLD. This article should cert the hands of all teachers wishing to underta work.

ERNEST E

University of Leeds.

The Board of Education on the Teaching

THE circular recently issued by the Board of on the teaching of Latin is remarkable both f contains and what it does not contain.

To take the last point first. It is noticeable is no reference in the memorandum to the ciplinary virtue which the classicists try to per inherent in Latin. The Board, indeed, alludes t as "a corrective to the loose phrasing which e from the syntactical freedom of modern English, though by no means an unimportant matter, paratively small claim. What is to be noted old idea that Latin possesses some mysterious develop the intellect which is not shared by any is not so much as hinted at in the circular.

favour of teaching the language are all frankly
the higher utilitarianism. Not Latin in and for
t Latin as a mental gymnastic, or a grindstone
ful wits, but Latin as the key to a considerable
f human knowledge is what we are called upon
t. This acceptance of the principle that children
udy the subjects which are, in the best sense of
useful, is no doubt a great step in advance, but
examine the particular utility which is claimed
, we find less reason to acclaim the wisdom of the

rst reason for including Latin in the curriculum
tated: "No study of the development of European
ns is possible without a knowledge of Latin, for
contained the records of the development of law,
literature, and thought." As the Board can
ntend to suggest that the children in our secondary
are to study the development of European institu-
books written in Latin, we are forced to the con-
that the language is to be studied for the benefit
few who will hereafter become historians and
in research, and who, being presumably of
intellectual powers, could easily learn Latin for
es when they found the necessity for it. But it
e easier to appreciate the Board's arguments if one
nderstand the Board's language. What is meant
e records of the development of law, religion,
e, and thought"? "The development of law and
" is an intelligible phrase, though it may be re-
in passing that the records of the development of
onal religion of this country are written mainly,
atin, but in Hebrew and Greek; but what is "the
nent of history"? If this ambiguous phrase
imply the history of Europe, why should Latin be
as the language in which its records must be
—unless, indeed, the authors of the circular regard
velopment of history" as having come to an end
ixteenth century. What, again, are "the records
development of literature"? What can they be
he books themselves which constitute literature,
re written, not exclusively or even mainly in Latin,
ll the languages of Europe? Indeed, the language
the development of literature can best be studied
ably French, which has had an uninterrupted
history of a thousand years; certainly not Latin,
has scarcely any monuments earlier than the
age. As for Latin being the language of "the
of the development of thought," the only meaning
possible to attach to this is that the authors of
ular consider that the human mind has stood still
ce Bacon wrote the "Novum Organum." The
ntence, indeed, suggests that there is some Rip van
at the Board of Education who has just awakened
sleep of three hundred years, and in whose view
ill holds the place that it did in the Middle Ages
ole key to learning and philosophy.

we are told that "Latin is an essential instrument
educated use of the vocabulary of English." There
ed to argue this point, for the statement contains
refutation. "Educated use" is a phrase of which
lboy might be ashamed. If the result of learning
to write English as badly as this, we can do
ll without it.

y, the Board holds that "a knowledge of Latin
ssary to any scientific study of the Romance
es." Grateful as one is for a proposition which
ce intelligible and indisputable, one is bound to
in whether the Board desires Latin to be taught
or the benefit of the very few who will devote
their lives to linguistics? It would really seem as if the authors of the circular believed that the principal business of schools is to train antiquarian and linguistic experts, or that mediæval research is the ordinary occupation of Englishmen in the twentieth century. Anyone who adopts either this view or that of a Rip van Winkle in Whitehall will find support for his theory in the absence of any allusion in the circular to the necessity of Latin for doctors and lawyers. Possibly, however, this curious omission may be due to a fear of yielding to the lower utilitarianism and to a contempt for base theories of education which regard the intellectual equipment of a boy for his work in life as part of the business of schools.

The claim that Latin is "the most valuable help to understanding the general principles of European languages" is decidedly a bold one. That you can understand German better by studying Latin, with which it has only a distant connection, than by studying German, is a theory which requires a good deal of argument to support it, argument from which the authors of the circular, perhaps wisely, refrain. No doubt one language will always throw light upon others, and the comparison of a highly synthetic with a partially synthetic language is a particularly instructive study, but it is quite another thing to hold that a boy or girl who has only eight hours a week to give to modern languages will do better to devote four of them to Latin than to give the whole eight to French and German.

If, as may fairly be presumed is the case, the framers of the memorandum themselves learnt Latin, the conclusion to be drawn would seem to be that one effect of classical studies is to produce a class of departmental officials whose intellectual sympathies are confined to linguistic study and mediæval research, who think it more important that one man should read Magna Carta in the original Latin than that a thousand should understand it in English, and that it is better to be capable of deciphering painfully an ancient chronicle than to be able to read with interest and intelligence a modern poet or philosopher.

Since writing the above I have read the report of the Classical Association on the teaching of Latin, and I see that this body also considers that "Latin is a necessary preliminary to the study of the origin of modern institutions." It could be wished that the authors of this report had explained more clearly what they meant. If the word "study" is to be understood in the sense that it is understood by men of learning, everybody will agree with the dictum; but then are we to teach Latin to three or four hundred boys because possibly one or two will need it in after life for the purposes of research? On the other hand, if by "study" is meant no more than the intelligent acquisition of such an ordered knowledge of the subject as every well-educated man should possess, then Latin is not necessary. Anyone who has read Stubbs, Hallam, and Erskine May will be pretty well acquainted with the origin of English institutions, even if he leaves out the notes, the only portions not written in the vulgar tongue.

G. F. Bridge.

University Work in the Training Colleges.

The recent Government action with regard to the training colleges, tending to make them less strictly denominational in character, has called forth much comment in the Press, and many conflicting views have been expressed as to the wisdom or otherwise of the new regulations from Whitehall.

In contrast to this, it is extraordinary to remark how very little has been heard of the great change of attitude

adopted by the Board of Education with regard to university work in the training colleges; yet this is a matter which is not a whit less important to the teacher and to his future than the question which is now so prominently before the public.

The most important part of a student's work in the training college is that relating to his professional career. We all agree here. Therefore, in order that there may be no danger of neglect on this side—assuming this to be the real reason—the Board is curtailing and hedging in with many conditions all university work. This branch of the college curriculum is to be discouraged and neglected in future—for what? Presumably for the "normal" work. What does this mean? It means that the only really efficient side of the training college courses—as they stand at present—is to be abandoned or neglected!

Were the colleges really "training" institutions, one might perhaps admit the wisdom of the step under consideration. But does the Board not realise that at present the "normal" side of the average training college is in a terribly weak state, so weak in some cases as to be nothing more than a mockery? Students are *not* trained to teach in our "training" colleges, and if the university side is to be discouraged then I earnestly hope that student teachers will spend their time and money to better advantage by taking the courses at such institutions as King's College, or University College, London. So long as the normal and training work continues to receive, as at present, such an utterly inadequate and unsatisfactory treatment, the good man will gain very little by entering an ordinary training college. For he will receive but a mockery of "training," while he will be enabled to get very little nearer to the completion of his degree.

There is another aspect to this question. This retrograde action on the part of the Board comes at a time when there are distinct signs that the State teacher is beginning to realise the importance of his profession, and the status he should and could occupy. He realises that he needs particularly: (1) wide practical experience in the schools, coupled with a broad and complete theoretical knowledge—this will make the teacher, the man who understands his profession; (2) academic qualifications—these will give him a proper status, and will define his relation to the other "learned" professions, besides giving him an adequate mental discipline and knowledge to fit him for the work of teaching.

Can it be that there is some insidious working of caste and of class-prejudice behind the action of the Board which is tending to keep the skilful and clever teacher from a position which he honestly deserves? Or, is it that the Board is merely overestimating the value of the "training" which is at present given in the State colleges?

Why has the Government not taken a step in the *forward* direction by affiliating all colleges directly to the universities? Student teachers could then graduate as internal students by taking philosophy and education as compulsory subjects for "Final," while the remaining two branches could be chosen from the "Arts" or "Science" side, according to the bent and capabilities of the student. The theoretical work in pedagogy would then be covered in a far more adequate manner than at present, the "certificate" examination would be unnecessary, while every student would be required to pass a practical examination similar in type and extent to that in the teaching test for the London University Teacher's Diploma. The student would then have the satisfaction of knowing that not only was he obtaining the necessary theoretical and practical knowledge for the practice of his profession, but at the same time he was comp academic qualifications.

It would be interesting to gain the opinions readers on these matters, for undoubtedly this the part of the Board of Education in discoura versity work in the State training colleges wil keep the best men from the teaching professio over, it will prove a tremendous bar to the real the hopes of all enthusiastic teachers—that th come to be regarded as a body of men and wom stituting the most important profession in the (*vide* H. G. Wells, "Anticipations").

JOHN

Hornsey Higher Elementary School.

The National Home-Reading Union.

MAY we ask for the freedom of your columns the attention of your readers to certain important ments which have recently taken place in the worl National Home-Reading Union?

We feel that there is hardly any field where c may be more helpful than in the schools where of reading is being imparted to children, and therefore made special efforts this session to ren attractive and pleasing than usual the books wh been selected for reading, and the magazines whicl articles dealing with the books. We are anxious teachers in creating and fostering amongst childr of books which are good and healthy, and in p habits of careless reading. We believe that our circles may be very helpful towards this end. Th means of directing the reading of children at h two years before they leave school, of familiarisi with some of the best books suitable to their a tastes, and of awakening such interest and pleasur reading of these books as will lead them to eschet of a worthless kind. They supply also a link betw school and the home, and not only induce the elder of the school to spend part of their evenings in a and useful way, but also make the influence of the and the books which the children are reading felt home.

We shall be glad to send specimen copies magazines and full information to any of your who may be interested in this letter, and we will welcome any co-operation they may feel able to this branch of our work.

J. B. PATON (Hon. Secr
A. M. READ (Secretary)

Surrey House, Victoria Embankment, London, W
November 19.

The School World.

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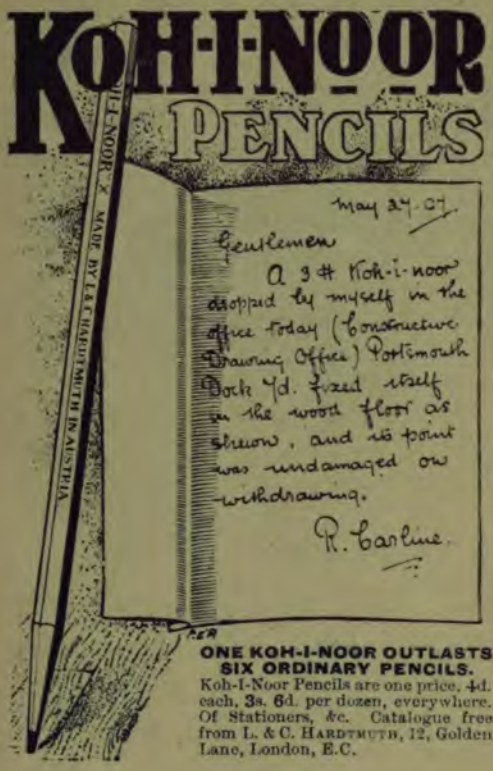
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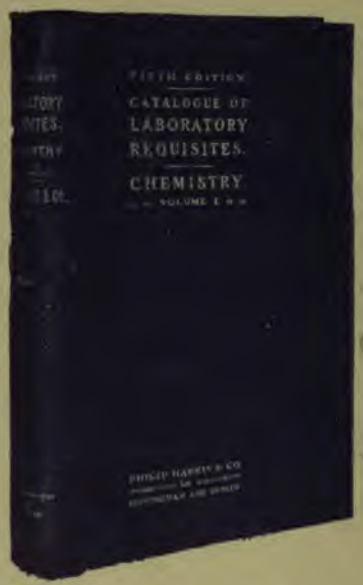

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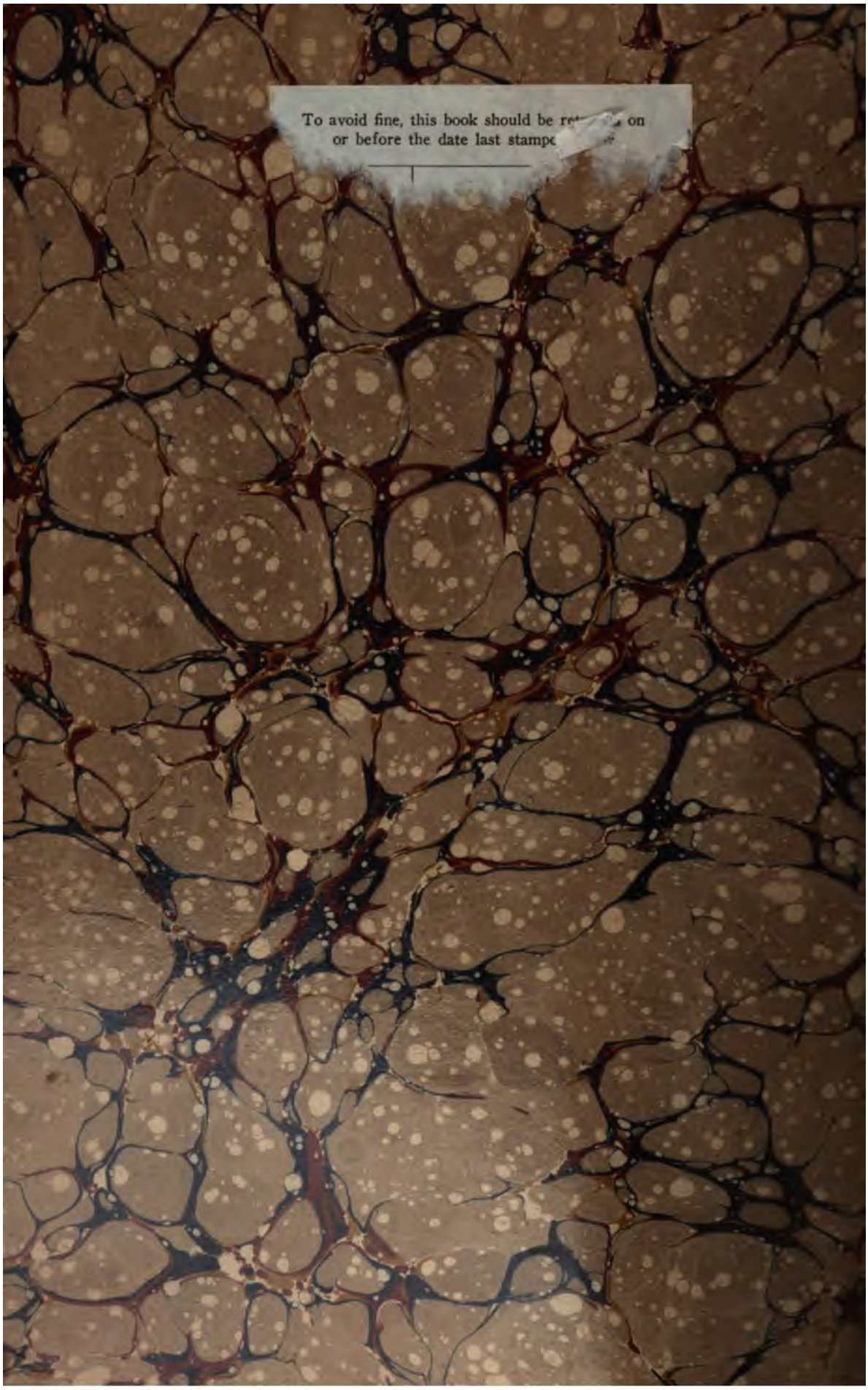

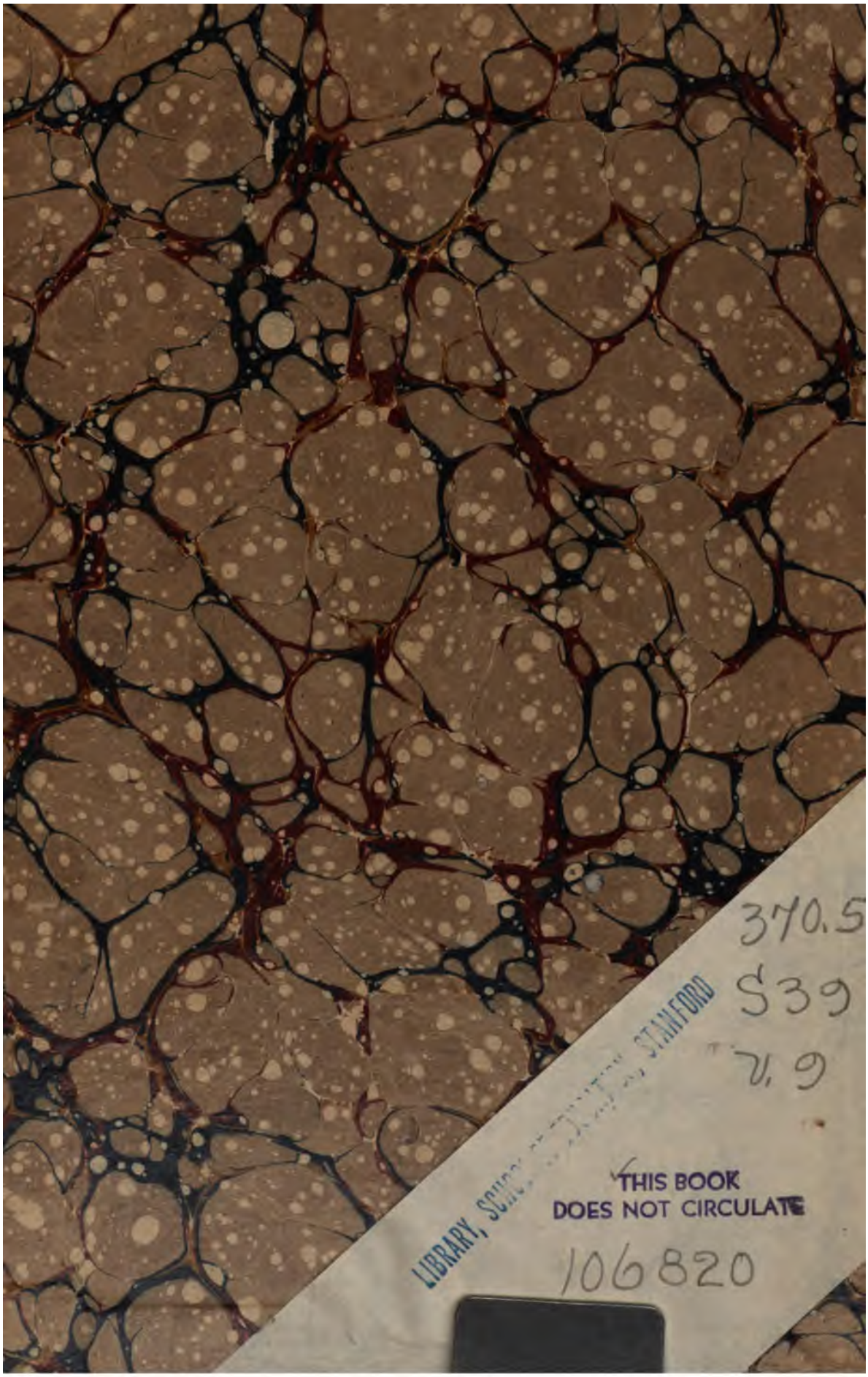
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